SDMS Doc ID 2022357

WASTE DISPOSAL, INC., SUPERFUND SITE
Santa Fe Springs, California

STATUS OF ENVIRONMENTAL INVESTIGATIONS
1988-1998
for Parcel
APN 8167-002-050

This Status of Environmental Investigations Report for Parcel 050 includes a summary of parcel ownership and environmental data for the subject land parcel. The report incorporates information from a variety of sources and organizations collected over a 10-year period during the various investigations of the Waste Disposal, Inc. Superfund Site. During development of the report, the U.S. Environmental Protection Agency made extensive efforts to verify the accuracy of the contents. However, there remains a potential for error originating from the numerous information sources themselves, or in the transcription of those sources. Sources not included or referenced in this report may also exist that could modify or update the conclusions contained in this report. The reader is cautioned to review the original source materials stated in the bibliography and additional sources that may be in the public record before drawing any conclusions regarding the absence or extent of contamination and wastes present within an individual site parcel. In addition, not all areas of each parcel were investigated during the referenced studies. The absence of data or investigative activities for areas of parcels should not be interpreted as meaning that any given area of a parcel does not contain buried wastes. Additional investigation may be warranted to confirm the absence or presence of wastes in any specific location within a parcel. Accordingly, this report is not intended to be singly relied on by any person or entity for any purpose. This report is intended to be a general summation and analysis only of the sources included or referenced herein. The U.S. Environmental Protection Agency is not responsible for the ultimate accuracy of this report nor for any reliance thereon. This report is not an order or final agency action.

December 2000

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 9
75 Hawthorne Street
San Francisco, California 94105

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PARCEL SUMMARY:

Assessor's Parcel Number 8167-002-050

Title search was conducted for the period covering January 1, 1935 to February 5, 1997

BUILDING ADDRESS:

9843 Greenleaf Avenue

CURRENT OWNER:

Brothers Machine and Tools, since November 17, 1995

Current owner information was last updated by EPA on February 3, 2000 and is based upon on-line tax assessor data through January 1, 1999. A complete chain of title, current through February 5, 1997, is included as Attachment 1 of this report.

INTRODUCTION

Parcel 8167-002-050 (Parcel 050) is one of 22 land parcels that collectively comprise the Waste Disposal, Inc. (WDI) Superfund Site (Figure 1). These 22 land parcels were identified by the U.S. Environmental Protection Agency (EPA) in July of 1987 as requiring investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) due to the prior use of the properties for waste disposal activities. This determination resulted in the WDI site's being placed on the National Priorities List (NPL) of hazardous waste sites for investigation and cleanup under CERCLA.

The main feature of the approximately 43-acre WDI site is a buried 42-million gallon concrete-lined reservoir in the center of the site that was constructed by 1924 as a covered container for crude petroleum storage. The areas outside of and adjacent to the reservoir began to be used for the unregulated disposal of a variety of liquid and solid wastes and the possible storage and mixing of drilling muds by the late 1920s. Between 1937 and 1941, the reservoir cover was removed. After the removal of the reservoir cover, from the early to mid 1940s onward; the reservoir began to be used for the disposal of wastes.

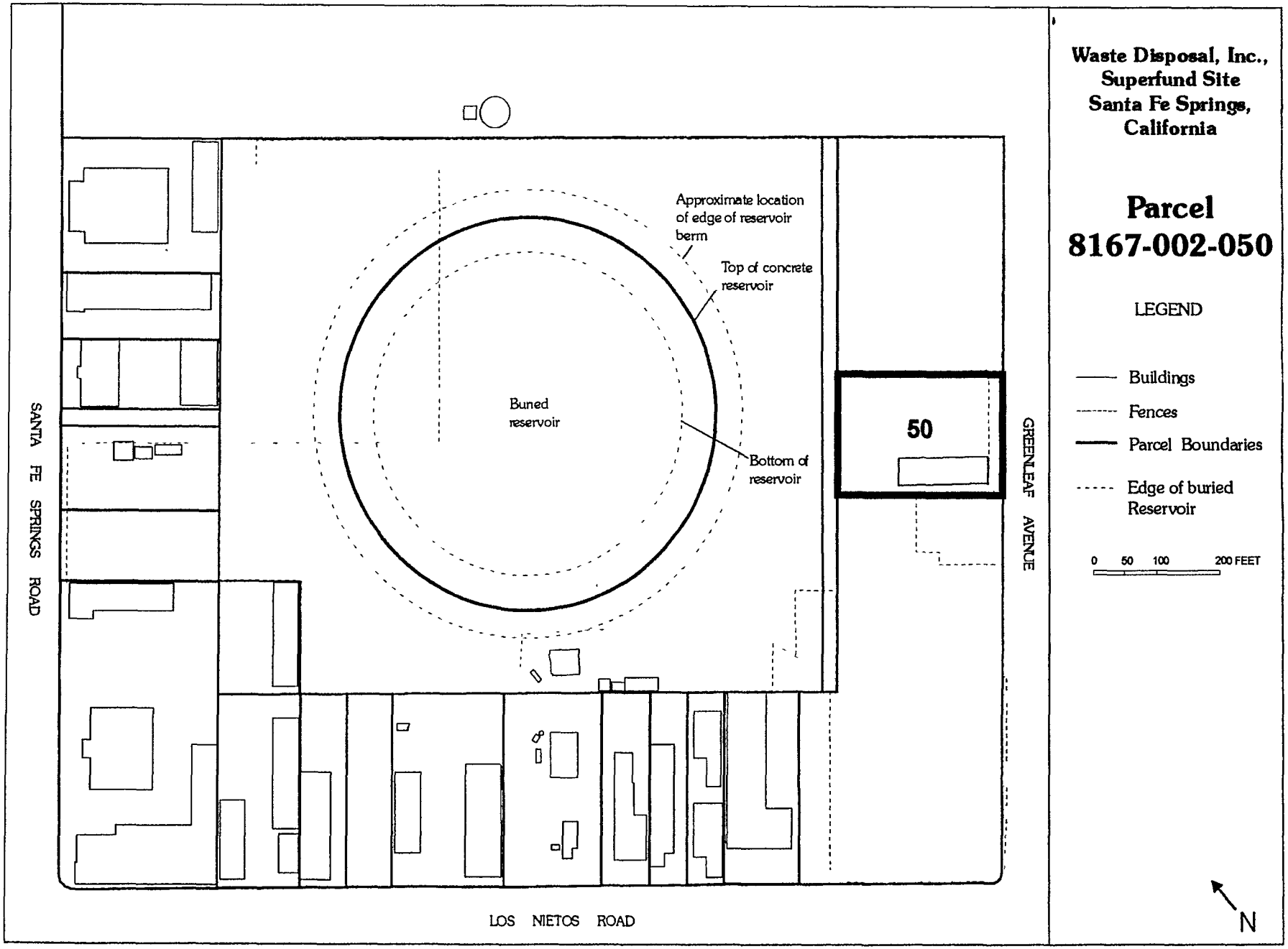
The site operated under a disposal permit beginning in 1949 until at least 1964, and operated perhaps for two to three years afterward. Permitted wastes included rotary drilling muds, clean earth, rock, sand, gravel, paving fragments, concrete, brick, plaster, steel mill slag, dry mud cake from oil field sumps, and acetylene sludge. Investigations have shown that disposed materials also included, but were not limited to, the following unpermitted wastes: organic wastes, oil refinery wastes, solvents, petroleum-related chemicals, and other chemical wastes. Wastes were disposed within the reservoir and on site areas adjacent to the reservoir.

During the 1950s, while disposal activities continued, the reservoir and some of the adjacent and surrounding areas began to be covered with fill material. Some of the perimeter areas of the site outside the reservoir began to be developed for commercial and industrial use. By 1963, the reservoir was covered with fill and by 1964, most, although not all, disposal activities appeared to have ceased. Grading of the fill cover continued until 1966. Currently, more than 20 buildings containing small businesses operate along the perimeter edges of three sides of the site.

In 1988, EPA began the remedial investigation (RI) of the site to determine the extent of buried wastes, and the presence of chemical wastes in soil, soil gas, and groundwater. This work involved drilling soil borings for soil sample collection and the installation of soil vapor and groundwater monitoring wells. EPA used the information collected during the RI to evaluate remedial alternatives in the WDI Feasibility Study Report, issued in 1993. Because the burial of wastes at the site makes it a landfill, EPA identified as the selected remedy in the 1993 Record of Decision (ROD) a remedy typical of landfill closures, consisting of capping of the reservoir area and excavation of wastes from some areas outside of the reservoir for consolidation with the wastes beneath the cap over the reservoir.

As of the present time, EPA has identified certain current owners or operators, former owners or operators who owned or operated the property at times of waste disposal, former operators of WDI, and

Figure 1: Waste Disposal, Inc., Santa Fe Springs, CA
Site Overview - Location of Parcel 050



generators of wastes disposed of at the site. These parties are considered as potentially responsible parties (PRPs) under CERCLA. Under CERCLA, PRPs can be required to remediate any environmental and human health threats through response actions and to reimburse EPA for its costs in investigating and cleaning up the contaminated site. A group of PRPs known as the Waste Disposal, Inc. Group (WDIG) initiated the remedial design work for this remedy in 1995 under an EPA enforcement order.

The 1993 ROD did not specifically address groundwater. Because uncertainties remained about the extent of groundwater and soil gas contamination, and because further environmental data were necessary for completion of the remedial design, EPA and the WDIG conducted further site investigations. EPA and the WDIG completed the majority of these additional investigations during the summer of 1998, and EPA is compiling data in order to re-evaluate the selected remedial action and to facilitate remedial design.

This Status of Environmental Investigations Report for Parcel 050 presents the findings from the various investigations of the WDI site conducted as of 1998 of concern to this specific parcel. Although data emphasis is placed on what is known for this parcel, selected findings from adjacent parcels are also provided when appropriate. Attachment 1 contains a chronological chain of title through February 5, 1997 for Parcel 050.

OVERVIEW OF ENVIRONMENTAL SAMPLING INVESTIGATIONS

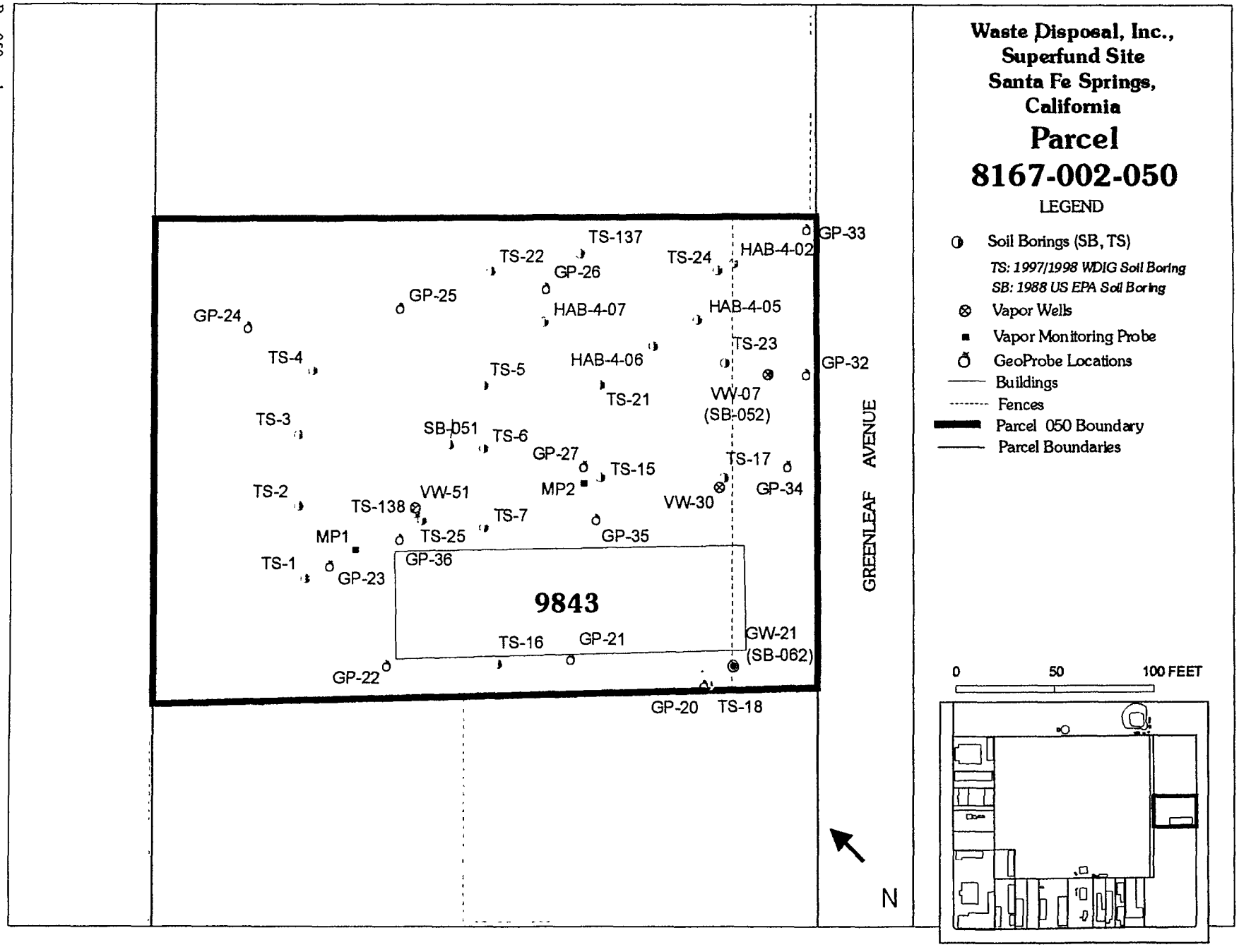
EPA 1988 Remedial Investigation

In 1988, EPA conducted the first investigation of the WDI site under CERCLA. This investigation involved the collection of groundwater, soil, and soil gas samples at the site. Within Parcel 050, three soil borings (SB-051, SB-052, and SB-062) were drilled for soil sample collection. Soil boring SB-052 was converted to soil vapor monitoring well VW-07 and SB-062 was converted to groundwater monitoring well GW-21. The locations of the wells and soil borings are shown on Figure 2. Table 1 presents the analytical results for the soil samples collected from these soil borings. The soil sample results indicate the presence of the semivolatile petroleum waste chemicals 4-methyl-2-pentanone, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene. The pesticide 4,4'DDT the volatile organic chemical toluene were each detected in one sample. None of these compounds exceeded established ROD standards. Arsenic was the only inorganic element that was found to exceed background levels; the ROD standard was exceeded in SB-062. These analytes are typically found in the wastes throughout the WDI site.

Groundwater Sampling Results

Groundwater monitoring well GW-21was first sampled in 1988, but not again until 1997. The analytical results for groundwater samples collected from this well are shown in Table 2. The metals arsenic, chromium, and lead have been reported for groundwater samples collected from this well, but at concentrations below their respective maximum contaminant levels (MCLs) for drinking water. Toluene, a chemical typically found in wastes at the site, was the only organic chemical reported for samples analyzed from this well, but at concentrations below its established MCL. Groundwater monitoring results for GW-

Figure 2: Location of Sampling and Monitoring Points for Parcel 050



Waste Disposal, Inc. Site
Santa Fe Springs, California

APN 8167-002-050

Parc050.wpd

10/25/99

Table 1: Soil Analytical Results for Parcel 050

Sample Location	1993	SB-051	SB-051	SB-051	SB-052	SB-052	SB-052	SB-062	SB-062	SB-062
Sample Date	ROD	Nov-98	Nov-98	Nov-98	Nov-98	Nov-98	Nov-98	Nov-98	Nov-98	Nov-98
Sample Depth (feet)	Standard	0	30	35	0	10	35	0	10	20
Organic Parameters	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
4,4'-DDT	5,000	ND	ND	ND	ND	ND	ND	22	ND	ND
4-Methyl-2-Pentanone	NE	ND	ND	ND	ND	4	ND	ND	ND	ND
Benzo(a)pyrene	2,300	55	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	2,300	45	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	2,300	48	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	NE	36	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	NE	ND	ND	ND	ND	ND	ND	87	ND	ND
Toluene	NE	5	ND	ND	5	ND	ND	420	ND	27
Trichloroethene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Arsenic	10	ND	2.29	7.04	ND	ND	7.50	12.4	13.9	17

Sample Location	1993	HAB-4-02	HAB-4-02	HAB-4-02	HAB-4-05	HAB-4-05	HAB-4-06	HAB-4-06	HAB-4-07	HAB-4-07
Sample Date	ROD	Jun-95	Jun-95	Jun-95	Jun-95	Jun-95	Jun-95	Jun-95	Jun-95	Jun-95
Sample Depth (feet)	Standard	10	15	20	10	5	10	15	15	20
Organic Parameters	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
4,4'-DDT	5,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	2,300	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	2,300	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	2,300	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Arsenic	10	3.70	2.00	6.90	3.30	8.60	1.80	2.90	2.90	2.10

Sample Location	1993	TS-137	TS-137	TS-137	TS-138	TS-138	TS-138
Sample Date	ROD	Dec-97	Dec-97	Dec-97	Dec-97	Dec-97	Dec-97
Sample Depth (feet)	Standard	3	10	32	3	12	25
Organic Parameters	ppb	ppb	ppb	ppb	ppb	ppb	ppb
4,4'-DDT	5,000	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	NE	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	2,300	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	2,300	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	2,300	ND	ND	ND	ND	ND	ND
Chrysene	NE	ND	ND	ND	ND	ND	ND
Pyrene	NE	ND	ND	ND	ND	ND	ND
Toluene	NE	ND	ND	ND	ND	ND	ND
Trichloroethene	NE	ND	ND	ND	ND	ND	ND
Metals	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Arsenic	10	3.8	1.4	2.3	0.55	3.8	3.1

NA = Not analyzed for
ND = Not detected
NE = Not established
ppb = parts per billion
ppm = parts per million

Table 2: Groundwater Analytical Results for Parcel 050

Metals

Sample Location	Maximum	GW-21	GW-21	GW-21	GW-21	GW-21
Sample Date	Contaminant	1989	Sep-97	Sep-97	Jan-98	Jan-98
Sample Interval	Level	56	36-56	36-56	36-56	36-56
Sample Type		Total	Total	Dissolved	Dissolved	Total
Concentration Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Analytical Parameter						
Arsenic	50	6.6	4	ND	2	ND
Chromium	50	8.8	1	ND	ND	ND
Lead	15	ND	2	ND	4.1	ND

Organic Compounds

Sample Location	Maximum	GW-21	GW-21	GW-21
Sample Date	Contaminant	Sep-97	Sep-97	Jan-98
Sample Interval	Level	36-56	Mar-56	36-56
Concentration Units	ug/L	ug/L	ug/L	ug/L
Analytical Parameter				
1,1-Dichloroethene	6	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
2-Butanone	NE	ND	ND	ND
2-Hexanone	NE	ND	ND	ND
4-Methyl-2-pentanone	NE	ND	ND	NA
Acetone	NE	ND	ND	ND
Chloroform	NE	ND	0.6	ND
cis-1,2-Dichloroethene	6	ND	ND	ND
Methylene chloride	NE	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND
Toluene	150	4	NA	NA
Trichloroethene	5	ND	ND	ND
Xylene (total)	1,750	ND	ND	ND

ND = Not detected
NE = Not established
NA = Not analyzed
ug/L = micrograms per liter

21 and wells installed in adjacent parcels indicate that the aquifer beneath Parcel 050 is not significantly affected by WDI site chemicals.

1997-98 EPA Soil Gas/Indoor Air Investigations

During the summer of 1997, EPA collected and analyzed soil gas and indoor air samples at the WDI site, including Parcel 050. The purpose of these investigations was to evaluate the potential for migration of soil gas contaminants from the buried waste into the indoor air of the on-site buildings. In order to establish contaminant levels that could be used to determine the need for future site investigations, EPA developed interim threshold levels for chemicals found in soil gas on-site. If a chemical was found to exceed the interim threshold level, EPA determined the need for additional investigations such as indoor air monitoring or expansion of the soil gas monitoring well network. The interim threshold levels are presented in the tables in this report along with the analytical data for Parcel 050.

EPA developed the interim threshold levels based on certain assumptions and property uses at the site. For each chemical, EPA calculated a risk range and selected a concentration level that was within a one in one million (10^{-6}) or one in 100,000 (10^{-5}) cancer risk, depending on the chemical. Exceedance of that concentration does not necessarily indicate an immediate risk. The levels are interim for the purposes of the site investigation, and may or may not be adopted as threshold levels for the final remedy. Compounds detected in indoor air also were compared to background concentrations for chemicals found in the air of the industrial setting of the Santa Fe Springs area.

Sampling of RI Soil Vapor Monitoring Well VW-07

Soil vapor well VW-07 was installed by EPA in 1988 as part of the original RI work (Figure 2). The well was sampled by EPA in 1989 and by the WDIG in 1995, before being buried during landscaping activities when the building at 9843 Greenleaf Avenue was upgraded to meet City of Santa Fe Springs requirements. Table 3 presents the analytical results for the samples collected from this well in 1989 and 1995. The only site-related chemicals reported for VW-07 for these two sampling events were tetrachloroethene and trichloroethene, two chlorinated solvents found in WDIG site waste.

1996 to 1998 Soil Vapor Monitoring Well Results

During the winter of 1997-98, the WDIG installed two multi-level soil gas monitoring wells (VW-30 and VW-51) on Parcel 050. VW-30 represents a site boundary point-of-compliance sampling location for the WDI site and VW-51 a near-building monitoring point. VW-30 was installed with three sampling probes at different depths in relation to the wastes buried beneath the parcel. The shallow probe was installed from 5 to 7 ft bgs to monitor the soil interval above the buried waste; the intermediate probe was installed from 18 to 23 ft bgs to sample soil gas within the interval of the buried waste; and the deep probe was installed from 30 to 35 feet bgs to sample soil gas below the buried waste interval. VW-51 was installed with two sampling probes; the shallow probe was installed from 13 to 18 feet bgs to sample the buried waste

Table 3: Soil Gas Vapor Well Analytical Results for Parcel 050

Sample Location	Interim	VW-07	VW-07	MP-01	MP-01	MP-01	MP-02	MP-02	MP-02	MP-02
Sample Date	Soil Gas	1989	Jun-95	Aug-97	Aug-97	Sep-97	Aug-97	Aug-97	Sep-97	Sep-97
Screen Interval/Depth (feet)	Threshold Level	35	35	3-5	10-15	3-5	3-5	10-15	3-5	10-15
Analytical Parameter	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
1,1,1-Trichloroethane	18,400	ND	ND	ND	ND	32	ND	ND	ND	ND
1,1-Dichloroethane	12,800	ND	ND	ND	ND	0.33	ND	ND	ND	ND
1,1-Dichloroethene	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	NE	NA	NA	ND	ND	7.8	ND	ND	140	ND
1,2-Dichloroethane	180	ND	ND	ND	ND	ND	ND	ND	ND	240
1,2-Dichloropropane	93	ND	ND	79	79	ND	79	79	ND	ND
1,3,5-Trimethylbenzene	NE	NA	NA	ND	ND	3.3	ND	ND	ND	ND
Acetone	15600	NA	13	874	2247	ND	592	6414	ND	ND
Benzene	100	ND	ND	ND	1700	370	260	3800	410	13000
Bromodichloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	170	ND	ND	ND	ND	0.25	ND	ND	ND	ND
cis-1,2-Dichloroethene	930	ND	3.7	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	24,500	ND	ND	ND	ND	2.8	ND	ND	53	700
m- & p- Xylene(s)	7,140	ND	ND	ND	ND	280	520	1000	570	5600
Methylene chloride	NE	ND	ND	ND	ND	ND	ND	ND	15	ND
o-Xylene	7,140	ND	ND	ND	ND	4	ND	ND	ND	83
Tetrachloroethene	532	32	4.9	ND	ND	9.4	220	ND	240	ND
Toluene	10,600	ND	ND	ND	ND	0.54	ND	ND	54	110
trans-1,2-Dichloroethene	1,840	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	411	38	3.9	ND	ND	2.3	ND	ND	10	ND
Trichlorofluoromethane	NE	ND	ND	ND	ND	4	ND	ND	ND	ND
Vinyl Chloride	12.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane (field) % by volume	1.25%	0.02	0.8	0	7.9	0.2	0.1	36	0.1	75
Methane (lab) ppm	12500	NR	NR	NR	NR	48	NR	NR	ND	NR

ND = not detected
NE = none established
NR = not reported
NA = Not Analyzed
ppbv = parts per billion by volume
ppm = parts per million

Table 3: Soil Gas Vapor Well Analytical Results for Parcel 050

Sample Location	Interim	VW-30	VW-30	VW-30	VW-51	VW-51	VW-51	VW-51
Sample Date	Soil Gas	Feb-98	Feb-98	Feb-98	Feb-98	Feb-98	Apr-98	Apr-98
Screen Interval/Depth (feet)	Threshold Level	5-7	18-23	30-35	13-18	25-30	13-18	25-30
Analytical Parameter	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
1,1,1-Trichloroethane	18,400	590	9.8	4 9	ND	160	ND	ND
1,1-Dichloroethane	12,800	0 71	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	NE	0 67	2 8	4.3	ND	43	ND	ND
1,2,4-Trimethylbenzene	NE	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	180	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	93	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	NE	NA	NA	NA	NA	NA	NA	NA
Acetone	15600	2.8	ND	ND	ND	ND	ND	ND
Benzene	100	ND	ND	ND	11	310	1,200	88
Bromodichloromethane	NE	1.6	ND	ND	ND	ND	ND	ND
Bromoform	NE	1.4	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NE	6.3	ND	ND	ND	150	ND	ND
Chloroform	170	1.4	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	930	ND	6.9	34	ND	320	ND	210
Dibromochloromethane	NE	2.4	ND	ND	ND	ND	ND	ND
Ethylbenzene	24,500	ND	ND	ND	ND	ND	ND	ND
m- & p- Xylene(s)	7,140	1.6	2.1	2.3	0.59	ND	ND	ND
Methylene chloride	NE	ND	ND	ND	ND	ND	ND	ND
o-Xylene	7,140	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	532	1.7	32	46	ND	ND	ND	ND
Toluene	10,600	2.4	2.7	4	ND	ND	ND	ND
trans-1,2-Dichloroethene	1,840	ND	5.5	26	ND	ND	ND	200
Trichloroethene	411	0.69	32	76	ND	ND	ND	140
Trichlorofluoromethane	NE	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	12.5	ND	ND	5.5	ND	82	ND	74
Methane (field) % by volume	1.25%	NR	NR	NR	NR	NR	NR	NR
Methane (lab) ppm	12500	4.8	9200	11000	NR	41000	NR	NR

ND = not detected

NE = none established

NR = not reported

NA = Not Analyzed

ppbv = parts per billion by volume

ppm = parts per million

interval and the deep probe was installed from 25 to 30 ft bgs to monitor soil gas below the buried waste interval.

The analytical results for soil gas samples collected from these two wells are also presented in Table 3. Vinyl chloride and benzene both exceeded their respective interim soil gas threshold levels in some of the samples collected from VW-51.

Methane Monitoring Probes

In January 1996, in order to comply with the City of Santa Fe Springs methane monitoring requirements, the new owners of Parcel 050 installed two nested monitoring probes near the building located at 9843 Greenleaf Avenue. Both of these monitoring points include probes installed from 3 to 5 feet below ground surface (ft bgs) and 10 to 15 (bgs). These probes were sampled for the presence of methane during several quarterly events. Methane is an explosive gas when the concentration of the gas reaches 5% by volume (the lower explosivity limit). The 1.25% limit represents a safety margin below the lower explosivity limit for taking corrective actions to prevent explosive situations in buildings and sewers. Table 4 presents the methane results as a percentage of the lower explosivity limit (LEL) for the two monitoring points (e.g., at 100% the gas becomes explosive, which also reflects 5% methane gas per volume of air). Methane was not detected in the shallow probes, but elevated concentrations of were present in the probes installed from 10 to 15 ft bgs.

TABLE 4: FIELD MEASUREMENTS FOR METHANE FOR MONITORING PROBES MP-1 and MP-2

Sample Date	MP-1	MP-1	MP-2	MP-2
Sample Interval (feet)	3-5 ft	10-15	3-5	10-15
1/96	ND	6%	ND	0.75%
4/96	ND	75%	ND	10%
7/96	ND	3%	ND	0.5%
2/97	ND	40%	ND	90%

Results are expressed as percent of the Lower Explosivity Limit

USEPA sampled monitoring probes MP-1 and MP-2 during the summer of 1997 for volatile organic chemicals; the analytical results are presented in Table 3. Of the several analytes detected in these samples, benzene and 1,2-dichloroethane were the only chemicals that exceeded their soil gas interim threshold levels. Benzene was detected above its threshold level (100 parts per billion by volume [ppbv]) in all of the samples analyzed; 1,2-dichloroethane was detected above its threshold level (180 ppbv) only in the sample collected from MP-02 at a depth of 10-15 ft bgs.

Temporary Soil Gas Probe Sampling Results

Soil gas samples were collected from 13 temporary soil gas probes (GP-20 through GP-27 and GP-32 through GP-36) as shown on Figure 2. The temporary probes were installed by hammering stainless-steel rods to a depth of about 10 ft and then attaching Teflon tubing to an adapter at the bottom of the rods. GP-34, GP-35, and GP-36 were also pushed to 20 feet for collection of deeper samples. A portable vacuum pump was used to collect samples for on-site analysis. Field instruments were also used to detect methane and volatile organic chemicals (VOCs). Tetrachloroethene was the only VOC detected in the samples collected from GP-20, GP-21, GP-22, GP-23, GP-24, GP-34, and GP-36 (27 ppbv at GP-20). Methane was reported in nine of the sixteen probes, however, it did not exceed its interim action threshold level of 1.25%. These methane results are presented in Table 5.

TABLE 5: FIELD METHANE MEASUREMENTS TAKEN AT GEOPROBE LOCATIONS PARCEL 050

Sample Location	Sample Date	Depth (feet)	Methane (%)
GP-20	9/9/97	10	0.06
GP-21	8/21/97	10	0.06
GP-22	8/22/97	10	0.05
GP-23	8/22/97	10	0.079
GP-24	8/22/97	10	0.059
GP-25	8/22/97	5	0.06
GP-26	9/4/97	3	0.25
GP-27	9/4/97	3	0.07
GP-32	9/4/97	10	0.0
GP-33	9/4/97	10	1.0
GP-34	9/4/97	10	0.0
GP-34	9/4/97	4	0.0
GP-35	9/4/97	10	0.0
GP-35	9/4/97	4	0.0
GP-36	9/9/97	10	0.0
GP-36	9/9/97	4	0.0

Indoor Air Sampling Results

There is one structure located on Parcel 050 that has been subject to indoor air sampling several times starting in August 1997 by EPA and during several sampling events by the WDIG in 1998. The samples were collected over a 24-hour period in 6-liter stainless steel canisters for off-site analysis for

VOCs. Table 6 presents the compounds detected in the building air. Although some petroleum-related and solvent chemicals were detected (e.g., toluene and xylenes) in the indoor air samples, the interim threshold levels were not exceeded and the concentrations reflect ambient air background levels for the Santa Fe Springs area.

WDIG 1995 Investigation

In 1995, in support of the remedial design activities, the WDIG collected additional soil samples at Parcel 050. The WDIG drilled four borings within Parcel 50 (HAB-4-02, HAB-4-05, HAB-4-06, and HPB-4-07) as shown on Figure 2. Data for these soil samples are presented in Table 1 (not all of the samples from each boring were analyzed). There were no WDI site volatile organic chemicals of concern detected in the samples analyzed from these borings. Arsenic was detected in each of the samples analyzed , but at concentrations below its ROD standard of 10 ppm.

WDIG Remedial Design Investigative Activities 1997-98

During the fall of 1997 and spring and summer of 1998, the WDIG conducted a number of studies at the WDI site. These studies included the installation of soil vapor wells, the drilling of soil borings for soil/waste characterization, the evaluation of soil vapor removal effectiveness, and the evaluation of liquids removal effectiveness.

To estimate the extent of the subsurface waste found in the area surrounding the buried reservoir, the WDIG drilled eighteen additional push probe soil borings (TS-1 through TS-7, TS-15 through TS-18, TS-21 through TS-25, TS-137, and TS-138) at Parcel 050. The locations of the borings are shown on Figure 2. All boring locations except TS-137 and TS-138 were used for visual observation of buried waste only. Buried waste was observed in all boring samples except at the TS-4, TS-17, and TS-18 locations. The soil boring logs are provided in Attachment 1 for each of these borings except TS-137 and TS-138 which were not logged. The soil samples collected from TS-137 and TS-138 were analyzed for the presence of WDI site waste constituents. Table 1 presents the results of the chemical analysis for the samples collected from these borings. There were no detections of WDI site chemicals of concern in the samples collected from these two borings.

WDIG Soil Vapor Extraction Treatability Study

WDIG's major investigative activity in Parcel 050 during the summer of 1998 was the performance of a soil vapor extraction treatability study. This study involved the installation of shallow and deep gas extraction wells with well screens above and below the interval of buried waste, respectively. Soil gas monitoring probes and air injection wells were also installed surrounding the extraction wells (Figure 3). Soil gas was extracted using a vacuum blower and the extracted gas was analyzed in the field and by a chemical testing laboratory for VOCs and methane. The well network included air injection wells that were

TABLE 6: SUMMARY OF IN-BUILDING AIR SAMPLING RESULTS
BROTHER'S MACHINE SHOP, 9843 GREENLEAF AVE.

Sample Location		Brothers Machine Shop				Brothers Machine Shop				Brothers Machine Shop				Brothers Machine Shop				Brothers Machine Shop			
Sample Address		9843 Greenleaf				9843 Greenleaf				9843 Greenleaf				9843 Greenleaf				9843 Greenleaf Ave			
Sample Number		SYN471				SYN538				SYN497				SYN498				WDI-IBM50-01			
Sample Type		Regular				Regular				Regular				Field duplicate				Regular			
Sample Date		8/4/97				8/4/97				8/25/97				8/25/97				2/9/98			
Sampler/Laboratory		EPA/Quanterra				EPA/Reg 9 Lab				EPA/Quanterra				EPA/Quanterra				WDIG/TRC Lab			
	ITSL	Result				Result				Result				Result				Result			
PARAMETER	ppbv	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com
1 1 1-Trichloroethane	368	0 32			C	0 3	L	J	F	0 22		J	C	0.22		J	C	0 93	U		
1 1 2 2-Tetrachloroethane	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 74	U		
1 1 2-Trichloro-1 2 2- trifluoroethane	NE	1 0	U			1	U	U		1 0	U	J	C	1 0	U	J	C		NR		
1 1 2-Trichloroethane	4 4	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 93	U		
1 1-Dichloroethane	256	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 2	U		
1 1-Dichloroethene	NE	0 2	U			1	U	U		0 2	U	J	C	0 2	U	J	C	1 3	U		
1 2 4-Trimethylbenzene	NE	1 0	U			0 6	L	J		1 0	U	J	C	1 0	U	J	C		NR		
1 2 Dibromoethane (EDB)	0 06	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 66	U		
1 2-Dichloro-1 1 2 2- tetrafluoroethane	NE	1 0				1	U	U		1 0	U	J	C	1 0	U	J	C		NR		
1 2 Dichlorobenzene	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 84	U		
1 2-Dichloroethane	3 6	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 2	U		
1 2 Dichloropropane	1 86	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 1	U		
1 3 5-Trimethylbenzene	NE	1 0	U			0 2	L	J	F	1 0	U	J	C	1 0	U	J	C		NR		
1 3-Dichlorobenzene	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 84	U		
1 4 Dichlorobenzene	NE	0 2	U			1	U			0 63		J	C	0 70		J	C	0 84	U		
2-Butanone	NE	NR				NR				NR				NR				5 1			
2 Hexanone	NE	NR				NR				NR				NR				1 2	U		
4-Methyl-2-pentanone	NE	NR				NR				NR				NR				1 2	U		
Acetone	312	NR				NR				NR				NR				17			
Benzene	2 0	1 9				1 0				0 60		J	C	0 58		J	C	1 0	J		
Bromodichloromethane	NE	NR				NR				NR				NR				0 75	U		
Bromoform	NE	NR				NR				NR				NR				0 49	U		
Bromomethane	NE	1 0	U			1	U	U		1 0	U	J	C	1 0	U	J	C	1 3	U		
Carbon Disulfide	NE	NR				NR				NR				NR				1 6	U		
Carbon tetrachloride	0 68	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 80	U		
Chlorobenzene	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 1	U		
Chloroethane	752	1 0	U			1	U	U		1 0	U	J	C	1 0	U	J	BC	1 9	U		
Chloroform	3 4	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 0	U		
Chloromethane	NE	1 5				2				0 55		J	C	0 44		J	C	2 4	U		
cis 1 2 Dichloroethene	18 6	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 3	U		
cis 1 3 Dichloropropene	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 1	U		
Dibromochloromethane	NE	NR				NR				NR				NR				0 59	U		
Dichlorodifluoromethane	NE	1 0	U			0 6	L	J	F	1 0	U	J	C	1 0	U	J	C		NR		
Ethylbenzene	490	1 1				0 6	L	J	F	1 0	U	J	C	1 0	U	J	C	1 2	U		
Hexachloro 1 3 Butadiene	NE	NR				1	U			NR				NR					NR		
m & p- Xylene(s)	142 8	4 4				2				2 0	U	J	C	2 0	U	J	C	1 4			
Methyl tert-Butyl Ether	NE	NR				NR				NR				NR				3 3			
Methylene chloride	NE	0 7			BC	0 8		J	DE	0 5		J	ACD	0 51		J	ACD	1 5	U		
o-Xylene	142 8	1 3				0 8	L	J	F	1 0	U	J	C	1 0	U	J	C	1 2	U		
Styrene	NE	1 0	U			0 5	J	J	F	1 0	U	J	C	1 0	U	J	C	1 2	U		
Tetrachloroethene	10 6	1 5				0 5	L	J	F	0 25		J	C	0 23		J	C	0 67	J		
Toluene	212	8 6				7				2.0		J	C	1 8		J	C	3 8			
trans-1 2 Dichloroethene	36 8	0 2	U			NR				0 2	U	J	C	0 2	U	J	C	1 3	U		
trans-1 3 Dichloropropene	NE	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	1 1	U		
Trichloroethene	8 2	0 2	U			1	U			0 2	U	J	C	0 2	U	J	C	0 94	U		
Trichlorofluoromethane	NE	1 0	U			0 4	L	J	F	1 0	U	J	C	1 0	U	J	C	0 90	U		
Trichlorotrifluoroethane	NE	NR				NR				NR				NR				0 66	U		
Vinyl Acetate	NE	NR				NR				NR				NR				1 4	U		
Vinyl Chloride	0 25	0 2	U			1	U	U		0 2	U	J	C	0 2	U	J	C	2 0	U		
Methane (ppmv)	12 500	39								34	U	J	CF	39	U	J	CF	2.7			
Total non-methane hydrocarbons (ppmv)		12								100	U	J	CF	120	U	J	CF	3 7			

ITSL = Interim Threshold Screening Level

ppbv = parts per billion by volume

ppmv = parts per million by volume

NE = Not established

NR = either not reported or not analyzed for

U = compound analyzed for but not detected

J = value is estimated

TABLE 6: SUMMARY OF IN-BUILDING AIR SAMPLING RESULTS
BROTHER'S MACHINE SHOP, 9843 GREENLEAF AVE.

Sample Location		Brothers Machine Shop				Brother's Machine Shop				Brothers Machine Shop				Brothers Machine Shop				Brothers Machine Shop			
Sample Address		9843 Greenleaf Ave				9843 Greenleaf Ave				9843 Greenleaf Ave				9843 Greenleaf Ave				9843 Greenleaf Ave			
Sample Number		WDI-IBMFD50-01				WDI-IBM50-02				WDI-IBM50-03				WDI-IBM-50-04				9843			
Sample Type		Field duplicate				Regular				Regular				Regular				Split Sample			
Sample Date		2/9/98				3/9/98				4/6/98				5/3/98				5/3/98			
Sampler/Laboratory		WDIG/TRC Lab				WDIG/TRC Lab				WDIG/TRC Lab				WDIG/TRC Lab				EPA/Quanterra			
	ITSL	Result				Result				Result				Result				Result			
PARAMETER	ppbv	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com
1,1,1-Trichloroethane	368	0.93	U			0.74	U			0.74	U			0.73	U			0.20	U		
1,1,2,2-Tetrachloroethane	NE	0.74	U			0.59	U			0.59	U			0.58	U			1.0	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NE		NR				NR				NR				NR			1.0	U		
1,1,2-Trichloroethane	4.4	0.93	U			0.74	U			0.74	U			0.73	U			0.20	U		
1,1-Dichloroethane	256	1.2	U			1.00	U			1.0	U			0.99	U			0.20	U		
1,1-Dichloroethene	NE	1.3	U			1.0	U			1.0	U			1.0	U			0.20	U		
1,2,4-Trimethylbenzene	NE		NR				NR				NR				NR			1.3			
1,2-Dibromoethane (EDB)	0.06	0.66	U			0.53	U			0.53	U			0.52	U			1.0	U		
1,2-Dichloro-1,1,2,2- tetrafluoroethane	NE		NR				NR				NR				NR			1.0	U		
1,2-Dichlorobenzene	NE	0.84	U			0.67	U			0.67	U			0.67	U			1.0	U		
1,2-Dichloroethane	3.6	1.2	U			1.00	U			1.0	U			0.99	U			0.20	U		
1,2-Dichloropropane	1.86	1.1	U			0.87	U			0.87	U			0.87	U			0.20	U		
1,3,5-Trimethylbenzene	NE		NR				NR				NR				NR			1.0	U		
1,3-Dichlorobenzene	NE	0.84	U			0.67	U			0.67	U			0.67	U			1.0	U		
1,4-Dichlorobenzene	NE	0.84	U			8.0				0.67				0.67	U			1.0	U		
2-Butanone	NE	2.1				1.4				1.4	U			1.9				NR			
2-Hexanone	NE	1.2	U			0.98	U			0.98	U			0.98	U			NR			
4-Methyl-2-pentanone	NE	1.2	U			0.98	U			0.98	U			0.98	U			NR			
Acetone	312	19				7.9				5.7				66				NR			
Benzene	2.0	1.3	J			1.1	TR			1.3	U			1.1	J			1.2			
Bromodichloromethane	NE	0.75	U			0.60	U			0.60	U			0.60	U			NR			
Bromoform	NE	0.49	U			0.39	U			0.39	U			0.39	U			NR			
Bromomethane	NE	1.3	U			1.0	U			1.0	U			1.0	U			1.0	U		
Carbon Disulfide	NE	1.6	U			1.3	U			1.3	U			1.3	U			NR			
Carbon tetrachloride	0.68	0.80	U			0.64	U			0.64	U			0.64	U			0.20	U		
Chlorobenzene	NE	1.1	U			0.87	U			0.87	U			0.87	U			1.0	U		
Chloroethane	752	1.9	U			1.5	U			1.5	U			1.5	U			1.0	U		A
Chloroform	3.4	1.0	U			0.83	U			0.83	U			0.82	U			1.0	U		
Chloromethane	NE	2.4	U			2.0	U			2.0	U			1.9	U			1.0	U		
cis-1,2-Dichloroethene	18.6	1.3	U			1.0	U			1.0	U			1.0	U			0.20	U		
cis-1,3-Dichloropropene	NE	1.1	U			0.89	U			0.89	U			0.88	U			0.20	U		
Dibromochloromethane	NE	0.59	U			0.47	U			0.47	U			0.47	U			NR			
Dichlorodifluoromethane	NE		NR				NR				NR				NR			1.0	U		
Ethylbenzene	490	1.2	U			0.92	U			0.73	TR			0.92	U			1.0	U		
Hexachloro-1,3-Butadiene	NE		NR				NR				NR				NR			NR			
m- & p- Xylene(s)	142.8	1.5				1.4				2.5				1.4				2.3			
Methyl tert-Butyl Ether	NE	4.7				4.3				2.2				11				NR			
Methylene chloride	NE	1.5	U			1.2	U			1.2	U			1.2	U			0.20	U		
o-Xylene	142.8	1.2	U			0.92	U			0.92	U			0.92	U			1.0	U		
Styrene	NE	1.2	U			0.94	U			0.94	U			0.94	U			1.0	U		
Tetrachloroethene	10.6	0.82				0.60	U			0.60	U			0.59	U			0.22			
Toluene	212	4.7				3.9				2.7				3.9				3.7			
trans-1,2-Dichloroethene	36.8	1.3	U			1.0	U			1.0	U			1.0	U			NR			
trans-1,3-Dichloropropene	NE	1.1	U			0.89	U			0.89	U			0.88	U			0.20	U		
Trichloroethene	8.2	0.94	U			0.75	U			0.75	U			0.74	U			0.20	U		
Trichlorofluoromethane	NE	0.90	U			0.72	U			0.72	U			0.71	U			1.0	U		
Trichlorotrifluoroethane	NE	0.66	U			0.53	U			0.53	U			0.52	U			NR			
Vinyl Acetate	NE	1.4	U			1.1	U			1.1	U			1.1	U			NR			
Vinyl Chloride	0.25	2.0	U			1.6	U			1.6	U			1.6	U			0.20	U		
Methane (ppmv)	12,500	2.6				2.5				2.6				2.1				17	U		D
Total non-methane hydrocarbons (ppmv)		1.0	U			2.5				1.0	U			6.7				170	U		D

ITSL = Interim Threshold Screening Level

ppbv = parts per billion by volume

ppmv = parts per million by volume

NE = Not established

NR = either not reported or not analyzed for

U = compound analyzed for, but not detected

J = value is estimated

TABLE 6. SUMMARY OF IN-BUILDING AIR SAMPLING RESULTS
BROTHER S MACHINE SHOP, 9843 GREENLEAF AVE.

Sample Location		Brothers Machine Shop				Brothers Machine Shop				Brothers Machine Shop				Brothers			
Sample Address		9843 Greenleaf Ave				9843 Greenleaf Ave				9843 Greenleaf Ave				9843 Greenleaf Ave			
Sample Number		WDI-IBM 50				WDI-IBM 50-06				WDI-IBM-50-07				WDI-IBM50-08			
Sample Type		Regular				Regular				Regular				Regular			
Sample Date		7/26/98				11/09/98				2/8/99				4/26/99			
Sampler/Laboratory		WDIG/TRC Lab				WDIG/TRC Lab				WDIG/TRC Lab				WDIG/TRC Lab			
	ITSL	Result				Result				Result				Result			
PARAMETER	ppbv	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com	ppbv	Qual	Val	Com
1 1 1-Trichloroethane	368	0 73	U			0 73	U			0 73	U			0 73	U		
1 1,2 2-Tetrachloroethane	NE	0 58	U			0 58	U			0 58	U			0 58	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NE	NR				NR					NR			NR			
1,1 2-Trichloroethane	4 4	0 73	U			0 73	U			0 73	U			0 73	U		
1 1-Dichloroethane	256	0 99	U			0 99	U			0 99	U			0 99	U		
1 1-Dichloroethene	NE	1 00	U			1 00	U			1 0	U			1	U		
1 2 4-Trimethylbenzene	NE	NR				NR					NR			NR			
1 2-Dibromoethane (EDB)	0 06	0 52	U			0 52	U			0 52	U			0 52	U		
1 2-Dichloro-1 1 2 2- tetrafluoroethane	NE	NR				NR					NR			NR			
1 2-Dichlorobenzene	NE	0 67	U			0 67	U			0 67	U			0 67	U		
1 2-Dichloroethane	3 6	0 99	U			0 99	U			0 99	U			0 99	U		
1 2-Dichloropropane	1 86	0 87	U			0 87	U			0 87	U			0 87	U		
1 3 5-Trimethylbenzene	NE	NR				NR					NR			NR			
1 3-Dichlorobenzene	NE	0 67	U			0 67	U			0 67	U			0 67	U		
1 4-Dichlorobenzene	NE	0 67	U			0 67	U			0 67	U			0 67	U		
2-Butanone	NE	2.0				2.8				1.8				2.7			
2-Hexanone	NE	0 98	U			0 98	U			0 98	U			0 98	U		
4-Methyl-2-pentanone	NE	0 98	U			0 98	U			0 98	U			0 98	U		
Acetone	312	15				25				110				24			
Benzene	2 0	1.6				2.1				2.1				1.2	J		
Bromodichloromethane	NE	0 60	U			0 60	U			0 60	U			0 6	U		
Bromoform	NE	0 39	U			0 39	U			0 39	U			0 39	U		
Bromomethane	NE	1 0	U			1 0	U			1 0	U			1	U		
Carbon Disulfide	NE	1 30	U			1 3	U			1 3	U			1 3	U		
Carbon tetrachloride	0 68	0 64	U			0 64	U			0 64	U			0 64	U		
Chlorobenzene	NE	0 87	U			0 87	U			0 87	U			0 87	U		
Chloroethane	752	1 5	U			1 5	U			1 5	U			1 5	U		
Chloroform	3 4	0 82	U			0 82	U			0 82	U			0 82	U		
Chloromethane	NE	1 9	U			1 9	U			1 9	U			1 9	U		
cis-1 2-Dichloroethene	18 6	1 00	U			1 00	U			1 0	U			1	U		
cis-1 3-Dichloropropene	NE	0 88	U			0 88	U			0 88	U			0 88	U		
Dibromochloromethane	NE	0 47	U			0 47	U			0 47	U			0 47	U		
Dichlorodifluoromethane	NE	NR				NR					NR			NR			
Ethylbenzene	490	0 92	U			2.5				1.1				0 92	U		
Hexachloro-1 3-Butadiene	NE	NR				NR					NR			NR			
m- & p- Xylene(s)	142 8	1.8				11				4.4				1.1			
Methyl tert-Butyl Ether	NE	13				3.4				7.7				2.4			
Methylene chloride	NE	1 20	U			1 20	U			1 2	U			1 2	U		
o-Xylene	142 8	0 92	U			5.9				1.9				0 92	U		
Styrene	NE	0 94	U			0 94	U			0 94	U			0 94	U		
Tetrachloroethene	10 6	0 59	U			0 59	U			0 59	U			0 59	U		
Toluene	212	5.3				8.0				6.2				2.6			
trans-1 2-Dichloroethene	36 8	1 00	U			1 0	U			1 0	U			1	U		
trans-1 3-Dichloropropene	NE	0 88	U			0 88	U			0 88	U			0 88	U		
Trichloroethene	8 2	0 74	U			0 74	U			0 74	U			0 74	U		
Trichlorofluoromethane	NE	0 71	U			0 71	U			0 71	U			0 71	U		
Trichlorotrifluoroethane	NE	0 52	U			0 52	U			0 52	U			0 52	U		
Vinyl Acetate	NE	1 10	U			1 10	U			1 1	U			1 1	U		
Vinyl Chloride	0 25	1 6	U			1 6	U			1 6	U			1 6	U		
Methane (ppmv)	12 500	3.0				2.8				2.9				2.3			
Total non-methane hydrocarbons (ppmv)		12				1 0	U			3.0				1	U		

ITSL = Interim Threshold Screening Level

ppbv = parts per billion by volume

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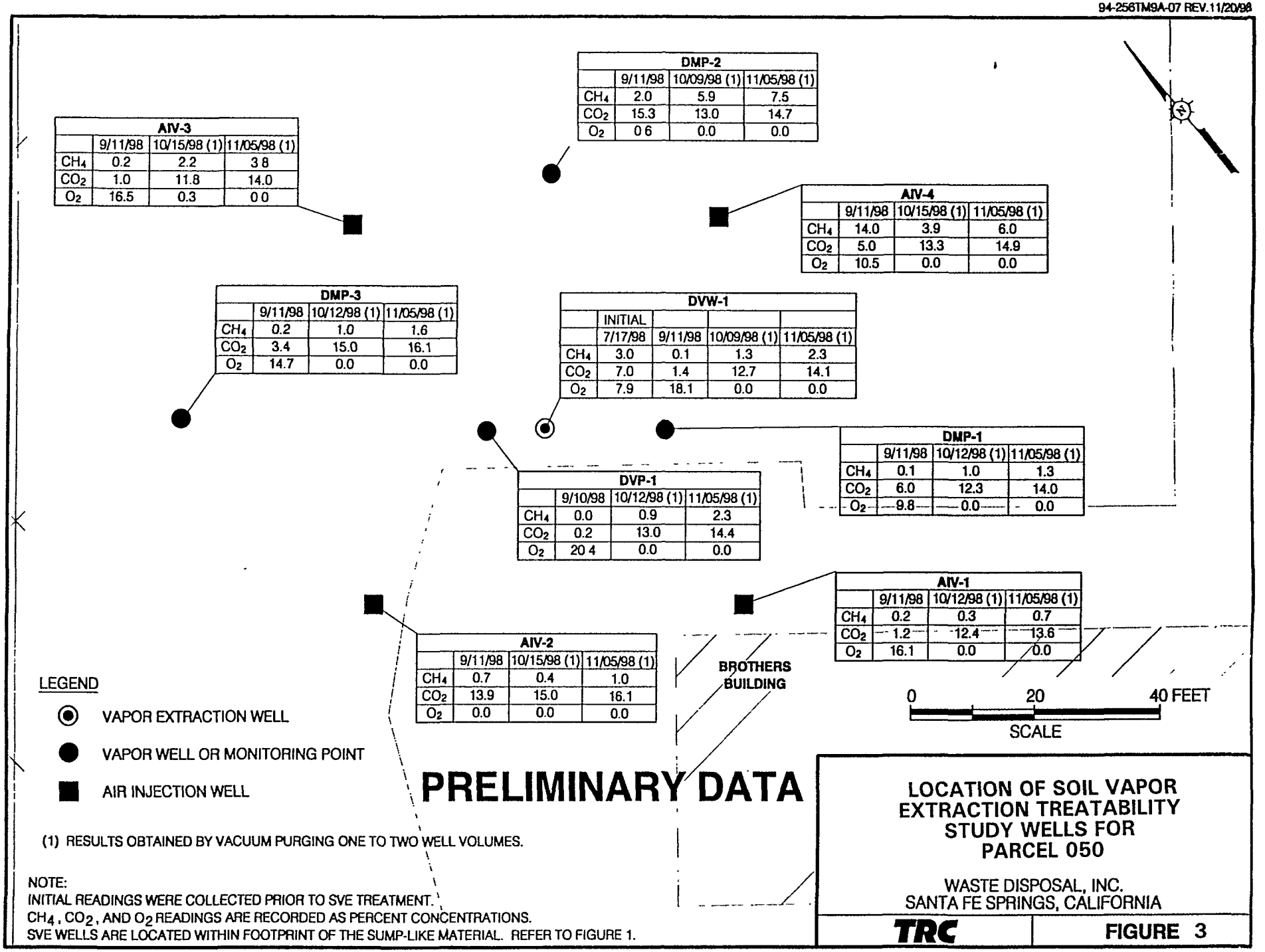


LEGEND

- VAPOR EXTRACTION WELL
- VAPOR WELL OR MONITORING POINT
- AIR INJECTION WELL

(1) RESULTS OBTAINED BY VACUUM PURGING ONE TO TWO WELL VOLUMES.

NOTE:
INITIAL READINGS WERE COLLECTED PRIOR TO SVE TREATMENT.
CH_4, CO_2, AND O_2 READINGS ARE RECORDED AS PERCENT CONCENTRATIONS.
SVE WELLS ARE LOCATED WITHIN FOOTPRINT OF THE SUMP-LIKE MATERIAL. REFER TO FIGURE 1.

PRELIMINARY DATA

LOCATION OF SOIL VAPOR EXTRACTION TREATABILITY STUDY WELLS FOR PARCEL 050

WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

TRC

FIGURE 3

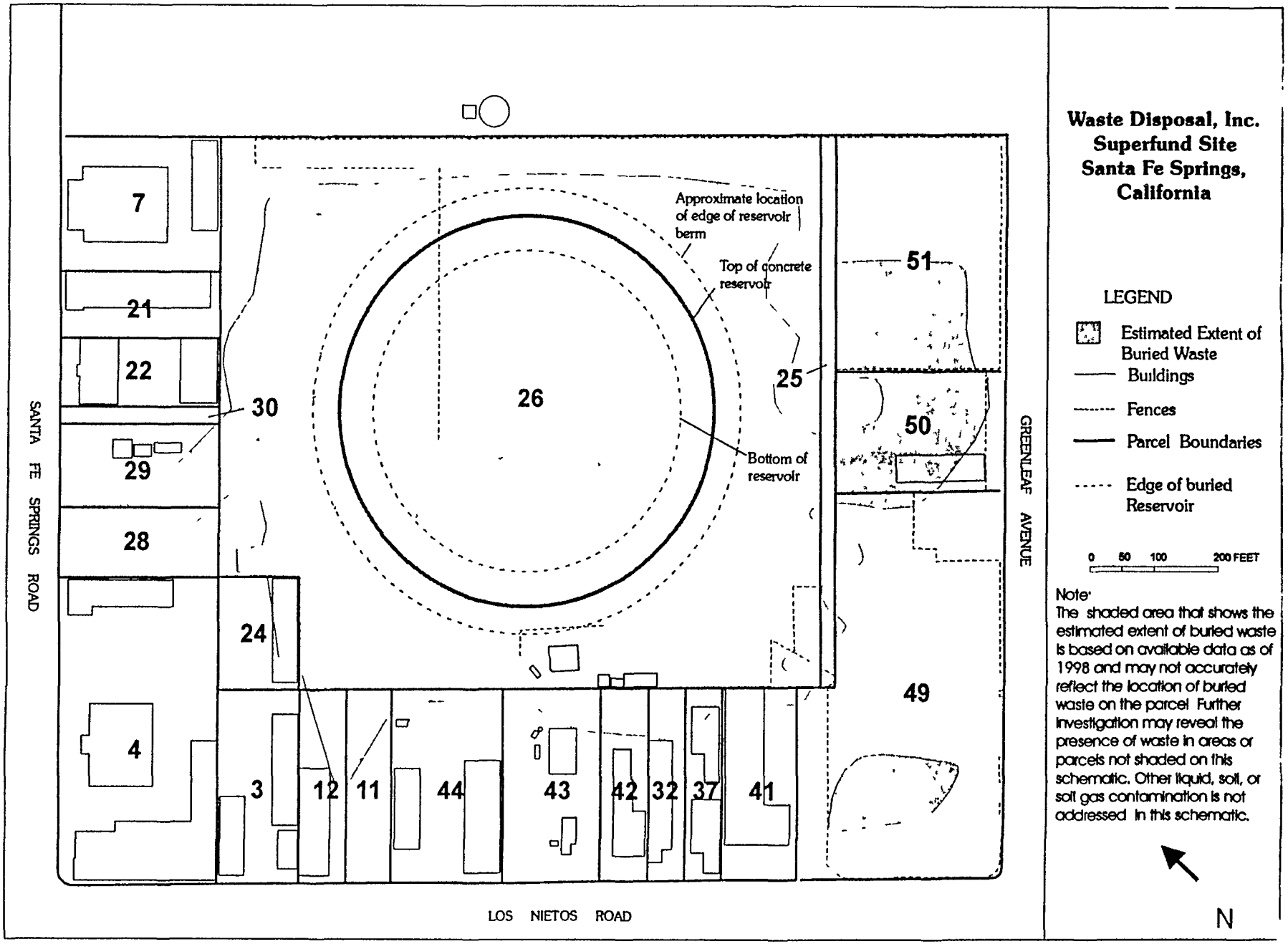
used to flush subsurface gases with atmospheric air into the extraction wells. The results of this investigation showed that contaminants in soil gas could be extracted reducing subsurface gas concentrations. The chemicals in the soil gas gradually increased following cessation of the extraction providing data on gas generation rates. The result of the study showed that soil vapor extraction to be an applicable technology to remove and control the migration of soil gas contaminants at the WDI site.

SUMMARY OF ENVIRONMENTAL SAMPLING RESULTS FOR APN 8167-002-050

Site investigations performed during 1988-89, 1995, 1997, and 1998 have evaluated soil, soil-gas, indoor air, and groundwater quality associated with Parcel 050. Analysis of soil samples identified the presence of petroleum-related wastes, such as 4-methyl-2-pentanone, pyrene, and toluene, that are typical of chemicals in wastes found buried at the WDI site. Soil borings drilled within Parcel 050 indicate that buried waste underlies a large portion of the parcel which appears to be contiguous with the waste that surrounds the buried reservoir. The buried waste mass has been shown to be up to 18 feet deep and an average of 10 feet in thickness. Soil gas results for this parcel indicate that the petroleum- and solvent-related chemicals benzene and vinyl chloride found in the waste mass throughout the site are also found in the soil gas beneath Parcel 050 in excess of their EPA interim soil gas threshold levels. The quality of the indoor air of the one structure on this parcel does not appear to be affected by the contaminants in the soil gas. Groundwater data for the parcel indicate no significant impact to groundwater due to buried wastes beneath this parcel.

Soil borings drilled and wells installed at Parcel 050 and adjacent parcels have been used to estimate the extent of soil and groundwater contamination for the site overall. The approximate extent of the buried waste that surrounds the reservoir area as shown on Figure 4 is partially based on the results of the 1988, 1995 and 1997-1998 site investigations.

Figure 4: Waste Disposal, Inc., Santa Fe Springs, CA
Estimated Extent of Buried Waste



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CDM Federal, 1999d. Subsurface Gas Contingency Plan Investigation Report Addendum, July 1998 Vapor Well Installation and Sampling Results, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California. January 14, 1999.

CDM Federal, 1999e. Subsurface Gas Contingency Plan Investigation Report, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California. January 18, 1999.

CDM Federal, 1999f. Subsurface Gas and In-Building Air Sampling Evaluation Report, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California. September 15, 1999.

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Dames and Moore, 1986c. Draft Summary of Findings Field Investigation, Campbell Property, Greenleaf Avenue and Los Nietos, Santa Fe Springs, California. August 19, 1986.

Dames and Moore, 1986d. Report for Soil Sampling Program, Toxo Spray-Dust, Waste Disposal, Inc. Site, Santa Fe Springs, California. November 5, 1986.

EBASCO Services, Inc. (EBASCO), 1989a. Final Soil Characterization Report, Waste Disposal, Inc., Santa Fe Springs, California. May 1989.

EBASCO, 1989a. Final Ground Water Characterization Report, Waste Disposal, Inc., Santa Fe Springs, California. May 1989.

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Frey Environmental, Inc., 1996a. Subsurface Combustible Gas Investigation for Property Located at 9843 Greenleaf Avenue, Santa Fe Springs, California. January 15, 1996.

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Frey Environmental, Inc., 1996c. Quarterly Subsurface Combustible Gas Monitoring Results for Property Located at 9843 Greenleaf Avenue, Santa Fe Springs, California. July 11, 1996.

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TRC, 1997b. Comprehensive Subsurface Gas Quarterly Monitoring Plan, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California. July 1997

TRC, 1998b. Preliminary Site Characterization Report, Waste Disposal, Inc. Superfund Site. March 1998.

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TRC, 1999b. 1998 Annual In-Business Air Monitoring Report, Waste Disposal, Inc. Superfund Site. March, 1999.

TRC, 1999c. 1998 Annual Ground Water Monitoring Report, Waste Disposal, Inc. Superfund Site. March, 1999.

TRC, 1999d. Technical Memorandum No. 9A - Soil Vapor Extraction Testing, Report of Findings, Waste Disposal, Inc. Superfund Site. March 1999.

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U.S. Environmental Protection Agency (USEPA), 1988. Aerial Photographic Analysis of Waste Disposal, Inc., Whittier, California. March 1988.

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ATTACHMENTS

ATTACHMENT 1
HISTORIC OWNERSHIP CHAIN OF TITLE
WASTE DISPOSAL, INC.
APN 8167-002-050
Through February 5, 1997

No. 1
01-15-21
Book 134 Page 213 of Official Records
James Weaver, et al.
Brenton S. Carr
Granted oil leasehold

No. 2
06-15-21
Book 332 Page 140 of Official Records
Brenton S. Carr / Huntington Owners Oil Co.
James Weaver, et al.
Surrendered oil leasehold

No. 3
11-26-21
Book 587 Page 368 of Official Records
Pacific Land Improvement Co.
Chanslor-Canfield Midway Oil Co.
Grant deed

No. 4
01-22-32
Book 11335 Page 264 of Official Records
Chanslor-Canfield Midway Oil Co.
General Petroleum Corp. of CA
Grant deed to real property, oil rights reserved by seller

No. 5
03-01-40
Book 17327 Page 128 of Official Records
General Petroleum Corp. of CA
Public record
Notice of non-responsibility

No. 6
02-02-42
Book 19044 Page 385 of Official Records
General Petroleum Corp. of CA
Ford Alexander Corp.
Deed to real property, oil rights reserved by Chanslor-Canfield

No. 7
02-26-46
Book 22789 Page 395 of Official Records
Ford Alexander Corp.
Public record
Notice of completion of work

No. 8
10-21-47
Book 25500 Page 167 of Official Records
Ford Alexander Corp
N. B Hudson
Grant deed to real property, oil rights reserved by Chanslor-Canfield

No. 9
10-21-47
Book 25500 Page 169 of Official Records
N.B Hudson
F. Caneer, D. L. Carter, Marvin Pitts
Grant deed, undivided 1/4 interest each

No 10
10-05-51
Book 37358 Page 244 of Official Records
Chanslor-Canfield Midway Oil Co
Atlantic Oil Co
Leased oil & gas rights

No 11
10-05-51
Book 37361 Page 362 of Official Records
Chanslor-Canfield Midway Oil Co
Public record
Notice of non-responsibility

No 12
06-15-53
Book 41974 Page 191 of Official Records
Morton and Dolley, a partnership, Harold C. Morton, Dorothy F Morton, Chester F. Dolley
California Bank, beneficiary, California Trust Co , trustee
Deed of trust

No 13
04-05-55
Book 47409 Page 100 of Official Records
N B Hudson
N B Hudson and Bessie Hudson
Grant deed, joint tenancy, 1/4 undivided interest

No. 14
09-14-56 (Doc. date)
Book 52331 Page 1 of Official Records
Morton and Dolley, a partnership, Harold C. Morton, Dorothy F. Morton, Chester F. Dolley
California Bank, beneficiary and trustee
Deed of trust

No. 15
01-24-58
Book 56430 Page 277 of Official Records
D. L. Carter, F. Caneer, Marvin Pitts
Southern California Edison Co.
Easement

No. 16
01-07-60
Instrument No. 2886
City of Santa Fe Springs
Public record
Variance

No. 17
07-01-60
Instrument No. 4403
City of Santa Fe Springs
Public record
Variance

No. 18
08-23-60
Instrument No. 4592
U. S. Paving Co.
Public record
Mechanic's lien

No. 19
10-17-60
Instrument No. 4960
U. S. Paving Co.
Public record
Release of mechanic's lien

No. 20
06-20-61
Instrument No. 4473
D. L. Carter, Zelda Carter, F. Caneer, Wanda Caneer, Marvin Pitts, Cecilia Pitts
General Telephone Co. of CA
Easement

No. 21
11-08-63
Instrument No. 4882
Morton and Dolley, a partnership, Harold C. Morton, Dorothy F. Morton, Chester F. Dolley, Anna M. Dolley
United California Bank, beneficiary and trustee
Deed of trust on oil lease interest

No. 22
02-16-65
Instrument No. 5962
United California Bank, trustee
Persons entitled
Full reconveyance
Affects Doc. No. 12

No. 23
02-16-65
Instrument No. 5963
United California Bank, trustee
Persons entitled
Full reconveyance
Affects Doc. No. 14

No. 24
05-23-69
Instrument No. 2917
Mobil Oil Co.
Public record
Unit agreement

No. 25
05-23-69
Instrument No. 2918
Mobil Oil Co.
Public record
Exhibits to unit agreement

No. 26
08-25-69
Instrument No. 2535
United California Bank, trustee
Security Pacific National Bank
Assignment and substitution of trustee

No. 27
01-21-70
Instrument No. 3004
F. Caneer
John Caneer, Joseph Caneer, each having an undivided one-half interest
Quitclaim deed

No. 28
01-21-70
Instrument No. 3005
F. Caneer
John Caneer, Joseph Caneer, each then having an undivided one-half interest
Quitclaim deed

No. 29
12-28-70
Instrument No. 1146
Mobil Oil Co.
Public record
Certificate that Unit Agreement will become effective

No. 30
01-26-71
Instrument No. 1631
Mobil Oil Co.
Public record
Counterpart C of Unit Agreement

No. 31
02-18-71
Instrument No. 3068
Chanslor-Western Oil and Development Co.
Public record
Agreement to become a party to unit agreement

No. 32
08-17-71
Instrument No. 3195
Bell Petroleum Co., Roland Way, Ethel Eckels
Public record
Agreement to become a party to unit agreement

No. 33
11-22-71
Instrument No 3911
Estate of Wanda Caneer
Joseph Caneer, John Caneer
Order for final distribution of estate

No 34
08-21-72
Instrument No. 3990
Rodman Palmer
Public record
Agreement to become a party to unit agreement

No. 35
09-19-72
Instrument No. 3644
John Caneer, Joseph Caneer, Estate of Fernando Caneer
Internal Revenue Service, beneficiary; Title Insurance and Trust Co., trustee
Deed of trust

No. 36
02-27-73
Instrument No. 2733
D. L. Carter
City of Santa Fe Springs
Easement

No. 37
03-09-73
Instrument No. 4175
N. B. Hudson
City of Santa Fe Springs
Easement

No. 38
03-09-73
Instrument No. 4176
Marvin W. Pitts, Cecilia Pitts
City of Santa Fe Springs
Easement

No. 39
03-09-73
Instrument No. 4177
John Caneer, Joseph Caneer
City of Santa Fe Springs
Easement

No. 40
07-14-73
Instrument No. 704
Title Insurance and Trust Co., trustee
Persons entitled
Full reconveyance
Affects Doc. No. 35

No. 41
12-20-73
Instrument No. 3425
Catherine Yrisarri
Public record
Agreement to become a party to unit agreement

No. 42
12-31-73
Instrument No. 399
N. B. Hudson, Bessie Hudson
Phil Campbell, Gwen H. Campbell
Grant Deed

No. 43
12-31-73
Instrument No. 400
Delmer L. Carter, Zelda May Carter
Phil Campbell, Gwen H. Campbell
Grant deed

No. 44
12-31-73
Instrument No. 401
Phil Campbell, Gwen Campbell
N. B. Hudson, Bessie Hudson, beneficiaries; Security Pacific National Bank, trustee
Deed of trust

No. 45
12-31-73
Instrument No. 402
Phil Campbell, Gwen Campbell
Delmer Carter, Zelda Carter, beneficiaries; Security Pacific National Bank, trustee
Deed of Trust

No. 46
03-22-74
Instrument No. 3808
Mobil Oil Co.
Public record
First revision of exhibit B of unit agreement

No. 47
04-15-74
Instrument No. 2865
Mobil Oil Co.
Public record
Second revision of exhibit B of unit agreement

No. 48
05-17-74
Instrument No. 4331
Marvin W. Pitts, Cecilia Pitts
Marvin E. Pitts
Grant Deed

No. 49
05-17-74
Instrument No. 4332
Marvin E. Pitts
Marvin W. Pitts, Cecilia Pitts, beneficiaries; Lawyers Title Insurance Corp., trustee
Deed of trust

No. 50
07-29-75
Instrument No. 335
Delmer L. Carter, Zelda M. Carter
Phil Campbell, Gwen Campbell
Agreement modifying note secured by deed of trust

No. 51
07-29-75
Instrument No. 336
Phil Campbell, Gwen Campbell
N B. Hudson, Bessie Hudson, Delmer Carter, Zelda Carter, beneficiaries; Security Pacific National Bank, trustee
Deed of trust

No. 52
10-20-76
Instrument No 4482
Joseph Caneer
Phil Campbell, Gwen H. Campbell, Marvin E. Pitts, John Caneer, Security Pacific National Bank, Nollie B. Hudson, Bessie Hudson, Delmer L. Carter, Zelda M. Carter, Lawyers Title Insurance Corp., Cecilia Pitts
Notice of Lis Pendens

No 53
07-19-78
Instrument No 78-786983
Marvin E Pitts
Marvin Pitts, Cecilia Pitts
Joint tenancy grant deed

No 54
01-12-79
Instrument No 79-54145
N B Hudson, Bessie Hudson, D L Carter, Zelda Carter, Fernando Caneer, Wanda Caneer, Marvin Pitts, Cecilia Pitts
D. L Carter, Zelda Carter, Fernando Caneer, Wanda Caneer, Marvin Pitts, Cecilia Pitts
Easement

No 55
09-11-79
Instrument No 79-1006639
John Caneer, Joseph Caneer
Phil Campbell, Gwen Campbell
Grant deed

No. 56
10-12-79
Instrument No. 79-1145303
John Caneer, Joseph Caneer
Adeline R. Bennett
Grant deed

No. 57
02-21-80
Instrument No. 80-177192
Lucy Caneer, La Rea Caneer, wives of Joseph Caneer and John Caneer
Adeline R. Bennett, M.D.
Quitclaim deed

No. 58
06-18-80
Instrument No. 80-589720
D. L. Carter, beneficiary
Security Pacific National Bank, trustee
Assignment of deed of trust

No. 59
06-18-80
Instrument No. 80-589722
D. L. Carter, beneficiary
Security Pacific National Bank, trustee
Assignment of deed of trust

No. 60
01-15-82
Instrument No. 82-50072
Phil Campbell, Gwen Campbell, Marvin E. Pitts, Marvin W. Pitts, Cecilia Pitts, Adeline Bennett, as interest holders; Marvin W. Pitts, Cecilia Pitts, as beneficiaries under deed of trust; Security Pacific Bank, as trustee under deed of trust
Public record
Parcel Map No. 14608 (map of subdivision)

No. 61
02-26-82
Instrument No. 82-207630
Joseph Caneer, Lucy Caneer, John Caneer, La Rea Caneer
Phil Campbell, Gwen Campbell
Grant deed for easement

No. 62
05-28-82
Instrument No. 82-549240
Superior Court of the State of California for the County of Los Angeles
Marvin E. Pitts
Corrected final judgment of partition and quieting title

No. 63
06-07-82
Instrument No. 82-574192
Marvin W. Pitts, Cecilia Pitts, substituted trustees
Persons entitled
Substitution of trustee and full reconveyance
Affects Doc. No. 49

No. 64
06-07-82
Instrument No. 82-574194
Marvin E. Pitts
William S. Elliott
Grant deed

No. 65
06-07-82
Instrument No. 82-574193
Ruth M. Elliott
William S. Elliott
Quitclaim deed

No. 66
06-07-82
Instrument No. 82-574195
William S. Elliott
M. E. Pitts, beneficiary; Title Insurance and Trust Co., trustee
Deed of trust

No. 67
08-31-82
Instrument No. 82-886182
Security Pacific National Bank, trustee
Persons entitled
Full reconveyance
Affects Doc. No. 51

No. 68
05-18-83
Instrument No. 83-553875
Ticor Title Insurance Co. of California, trustee
Persons entitled
Full reconveyance
Affects Doc. No. 66

No. 69
07-19-91
Instrument No. 91-1112254
Atlantic Oil Co.
Chanslor-Canfield Midway Oil Co.
Quitclaim of oil and gas lease

No. 70
12-29-94
Instrument No. 94-2287419
Bank of America N.T. & S.A.
Public record
Notice of Intent to Preserve Interest

No. 71
11-17-95
Instrument No. 95-1845160
William S. Elliott
Brothers Machine and Tool, Inc.
Grant deed

No. 72
11-17-95
Instrument No. 95-1845161
Brothers Machine and Tool, Inc.
William S. Elliott, beneficiary; Commerce Enterprises, Inc., trustee
Deed of trust

ATTACHMENT 2

Soil Boring Logs

FIELD BORING LOG

OFS NUMBER: SHEET 1

PROJECT NAME: WASTE DISPOSAL INC.
LOCATION: SANTA FE SPRINGS CALIFORNIA
CLIENT NAME: EPA
SITE MANAGER: D. MELCHIOR
LOGGED BY: L. SAWYER

BORING NUMBER: SB-051
BORING LOCATION: ATLAS STEEL
DRILLING CONTRACTOR: DATUM
DRILLING METHOD: HSA
BIT SZ/HAMMER WT/DROP: 7"/140#/30"
SAMPLE RETRIEVAL SYS: SPLIT SPOON

DATE/TIME STARTED: 09/15/88 0850
DATE/TIME COMPLETED: 09/15/88 1121
TOTAL DEPTH: 35.00
SURFACE ELEVATION: 156.7234
WATER DEPTH: 0.00

DEPTH IN FT	GRAPHIC LOG (BOULDERS / COBBLES / CRS SAND / MED SAND / FINE SAND / SILT / CLAY)	SAMPLE #	BLOWS 6"	OVA PPM	CGI %LEL	ODOR	COLOR	MOISTURE	POR/PEM	USCS SYMB	HNU	DESCRIPTION
0	CRS, FINE, SILT, CLAY	01 02 03	12 8 9	38.0	0	N	DB	DR	L	SC	0.2	SAND AND CLAY WITH PEBBLES AND CONCRETE CHIPS. POOR SORTING. CLP SAMPLES. 0903
5	MED SAND, FINE SAND		3 5 6	10.0	0	N	DB/G	DR	L	CL	0.8	GRAY SAND 6" UNDERLIES DARK BROWN CLAY (SILTY) WITH CARBONACEOUS MATERIALS AND IRON (FERRIC) STAINS. NO SAMPLES COLLECTED. 0912
10	COBBLES, SILT, CLAY	04 05 06	17 23 30	10.0	0	N	DB	MO	L	CL	1.0	SILTY CLAY WITH PEBBLES. NO VISIBLE CONTAMINATION. CLP SAMPLE COLLECTED. 0926
15	FINE SAND, SILT, CLAY		7 9 13	10.0	0	N	G	MO	L	ML	0.8	SANDY SILT WITH CLAY AND SILTY CLAY. POORLY SORTED. NO SAMPLE RECOVERY. 0936
20	SILT, CLAY	07 08 09	8 12 21	10.0	0	N	DG	MO	L	CL	0.8	DARK GRAY SILTY CLAY. NO CONTAMINATION EVIDENT. CLP SAMPLES. 0948
25	CRS SAND, MED SAND, FINE SAND		24 28 40	8.8	0	N	DG	MO	H	SP	0.8	MEDIUM TO COASE-GRAINED QUARTZ SAND. NO SAMPLES COLLECTED. 1002
30	COBBLES, CRS SAND, MED SAND	10 11 12 13	40 60 65	9.0	10	N	DG	MO	H	SP	0.2	DARK GRAY COARSE TO MEDIUM SAND. NON-CLP SAMPLES COLLECTED. 1016
35	COBBLES, CRS SAND, MED SAND	14 15 16	25 26 21	1000.0	80	HHC	DG	MO	H	SP	0.8	# 14 IS DUPLICATE; LESS THAN HALF INCH RECOVERY. 90% LEL NEAR SURFACE AT 1121. 27.9% IN BREATHING ZONE, OVER 100% IN HOLE. 1050

FIELD BORING LOG

OFS NUMBER: SHEET 1

PROJECT NAME: WASTE DISPOSAL INC.
LOCATION: SANTA FE SPRINGS CALIFORNIA
CLIENT NAME: EPA
SITE MANAGER: D. MELCHIOR
LOGGED BY: L. SAWYER

BORING NUMBER: SB-052 (VW-07)
BORING LOCATION: ATLAS STEEL
DRILLING CONTRACTOR: DATUM
DRILLING METHOD: HSA
BIT SZ/HAMMER WT/DROP: 7"/140#/30"
SAMPLE RETRIEVAL SYS: SPLIT SPOON

DATE/TIME STARTED: 09/15/88 1405
DATE/TIME COMPLETED: 09/16/88 0849
TOTAL DEPTH: 35.00
SURFACE ELEVATION: 154.5544
WATER DEPTH: 0.00

DEPTH IN FT	GRAPHIC LOG: BOULDERS	COBBLES	CRS SAND	MED SAND	FINE SAND	SILT	CLAY	SAMPLE #	BLOWS 6"	OVA PPM	CGI %LEL	ODOR	COLOR	MOISTURE	POR/PEM	USCS SYMB	HNU	DESCRIPTION
0			X		X	X		01 02 03	27 21 22	0.0	0	N	B	DR	L	SW	0.4	OVA FAILURE. HARD SAND, CLAY WITH PEBBLES AND CONSTRUCTION DEBRIS. CLP SAMPLE COLLECTED. 1426
5						X	X		9 10 11	0.0	4	N	DB/G	DR	L	CL	2.0	DARK BROWN TO GRAY HARD CLAY. NO CONTAMINATION VISIBLE. NO SAMPLES COLLECTED. 1437
10			X	X	X	X		04 05 06	9 11 11	0.0	0	N	DB	DR	L	SM	1.0	UNSORTED BROWN, SILTY SAND/ NO VISIBLE CONTAMINATION. CLP SAMPLES COLLECTED. 1448
15				X		X	X		12 11 20	0.0	0	N	G	DR	L	MH	1.0	GRAY, MICACEOUS CLAY WITH BROWN SAND. NO VISIBLE CONTAMINATION. NO SAMPLES COLLECTED. 1500
20				X	X			07 08 09	11 14 40	0.0	9	N	G	DR	L	SP	0.2	INORGANIC 3" SAMPLES NOT COLLECTED DUE TO POOR RECOVERY. MEDIUM TO FINE SAND. MICACEOUS. CLP SAMPLE AND DUPLICATE. 1511
25			X	X	X				35 63 0	3.0	0	N	G	DR	H	SP	1.0	GRAY COARSE SAND, QUARTZ RICH. NO CONTAMINATION. NO SAMPLES COLLECTED. 0827
30			X	X	X				35 57 0	1.5	0	N	G	DR	H	SP	1.0	GRAY COARSE SAND, QUARTZ RICH. NO CONTAMINATION. NO SAMPLES COLLECTED. 0840
35						X	X	10	19 26 30	0.4	0	N	G	DR	L	CL/ML	0.5	GREY CLAY WITH SILT. SET UP TO INSTALL VADOSE WELL. NON CLP SAMPLE. 0849

FIELD BORING LOG

OFS NUMBER: SHEET 1

PROJECT NAME: WASTE DISPOSAL INC.
LOCATION: SANTA FE SPRINGS CALIFORNIA
CLIENT NAME: EPA
SITE MANAGER: D. MELCHIOR
LOGGED BY: G. GALLOWAY

BORING NUMBER: SB-062 (GW-21)
BORING LOCATION: ATLAS STEEL
DRILLING CONTRACTOR: DATUM
DRILLING METHOD: HSA
BIT SZ/HAMMER WT/DROP: 7"/140#/30"
SAMPLE RETRIEVAL SYS: SPLIT SPOON

DATE/TIME STARTED: 10/01/88 0750
DATE/TIME COMPLETED: 10/01/88 1025
TOTAL DEPTH: 60.00
SURFACE ELEVATION: 155.4928
WATER DEPTH: 48.50

DEPTH IN FT	GRAPHIC LOG (BOULDERS, COBBLES, SAND, CRS SAND, MED SAND, FINE SAND, SILT, CLAY)	SAMPLE #	BLOWS 6"	OVA PPM	CGI %LEL	ODOR	COLOR	MOISTURE	POR/PERM	USCS SYMB	HNU	DESCRIPTION
0	MED, SILT, CLAY	01 02 03 04	8 10 14	1.5	0	N	DB	DR	LL	CL	0.0	ASPHALT (7.5"). BASE (2"). SILTY CLAY, DARK BROWN, DRY, STIFF, WELL CEMENTED. SAMPLE #4 IS ORGANIC DUPLICATE. CLP SAMPLES COLLECTED. 0800
5	MED, SILT, CLAY		14 24 24	1.5	0	N	BR	DR	LL	CL	0.0	SILTY CLAY, BROWN, DRY, STIFF, WELL CEMENTED.
10	SILT, CLAY	05 06 07	10 18 20	0.0	0	N	RB	DR	LL	CL	0.0	SILTY CLAY, RED/BROWN, STIFF, WELL CEMENTED. CLP SAMPLES COLLECTED. 0825
15	SILT, CLAY		17 27 34	2.0	0	N	GB	DR	LL	CL	0.0	LEAN CLAY, GREENISH BROWN, STIFF, WELL CEMENTED.
20	MED, FINE, SILT, CLAY	08 09 10 11	12 20 24	0.0	0	N	RB	DR	ML	SW	0.0	MEDIUM TO COARSE GRAINED SAND WITH CLAY, RED/BROWN, DAMP, MEDIUM DENSE, MODERATELY TO WELL CEMENTED. #11 IS ORGANIC DUPLICATE. 0845
25	CRS SAND		17 27 30	0.0	0	N	YB	SM/MO	HH	SP	0.0	COARSE SAND, YELLOW BROWN, MOIST, MEDIUM DENSE, POORLY CEMENTED. AT 25.5' TO 26' LEAN CLAY.
30	CRS SAND, SILT, CLAY		22 50 0	0.0	0	N	YB	SM/MO	HH	SP	0.0	COARSE GRAINED SAND, YELLOW BROWN, MOIST MEDIUM DENSE, POORLY CEMENTED. AT 30'5" TO 30'9" SILTY CLAY.
35	SILT, CLAY	12 13 14 15	12 19 17	0.0	0	N	GB	MO	LL	CL	0.0	FAT CLAY, GREEN BROWN, MOIST, STIFF, WELL CEMENTED. THIN SILTY CLAY INTERBEDS LESS THAN 2" THICK (20%) NON CLP SAMPLES COLLECTED. 0914
40	SILT, CLAY		14 14 30	0.0	0	N	OB	SM/MO	LM	SC	0.0	SILTY CLAY, ORANGISH BROWN, DAMP, MEDIUM DENSE, MODERATELY WELL CEMENTED.
45	MED, FINE		27 50 0	0.0	0	N	OB	SM/MO	MM	SP	0.0	MEDIUM GRAINED SAND, ORANGISH BROWN, MOIST, MEDIUM DENSE, MODERATELY WELL CEMENTED. GROUNDWATER AT 48'5".

FIELD BORING LOG

OFS NUMBER: SHEET 2

PROJECT NAME: WASTE DISPOSAL INC.
LOCATION: SANTA FE SPRINGS CALIFORNIA
CLIENT NAME: EPA
SITE MANAGER: D. MELCHIOR
LOGGED BY: G. GALLOWAY

BORING NUMBER: SB-062
BORING LOCATION: ATLAS STEEL
DRILLING CONTRACTOR: DATUM
DRILLING METHOD: HSA
BIT SZ/HAMMER WT/DROP: 7"/140#/30"
SAMPLE RETRIEVAL SYS: SPLIT SPOON

DATE/TIME STARTED: 10/01/88 0750
DATE/TIME COMPLETED: 10/01/88 1025
TOTAL DEPTH: 60.00
SURFACE ELEVATION: 155.4928
WATER DEPTH: 48.50

DEPTH IN FT	GRAPHIC LOG	SAMPLE #	BLOWS 6"	OVA PPM	CGI %LEL	ODOR	COLOR	MOISTURE	POR/PEN	USCS SYMB	HNU	DESCRIPTION
50	BOULDERS, COBBLES, CRS SAND, MED SAND, FINE SAND, SILT, CLAY		18 29 42	0.0	0	N	G	WT	HH	SP	0.0	MEDIUM GRAINED SAND, GRAY, WET, MEDIUM DENSE, POORLY CEMENTED.
55			14 23 38	0.0	0	N	GB	WT	HH	SP	0.0	VERY COARSE GRAINED SAND WITH PEBBLES AND GRAVEL, GREY BLACK, WET, POORLY CEMENTED.
60			26 34 41	0.0	0	N	GB	WT	HH	SP	0.0	VERY COARSE GRAINED SAND WITH PEBBLES AND GRAVEL, GREY BLACK, WET, POORLY CEMENTED. WATER AT 48.5', HEAVING BELOW WATER.

BORING NO. WDI-TS-01 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2' ø

FIELD ENGINEER A. Isely

EDITED BY A. Isely

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-6-97

DATE FINISHED 10-6-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Time 5cm/12	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	0825	CC 1'Recov.	ml/sm		SANDY SILT TO SILTY SAND: Light gray, trace of gravel, dry, No staining
		0845	10" Rec.	ml		(~1.'-1.7') SILT: Red, trace of sand, dry, No staining
				SW		(~1.7'-2') SAND: Light brown, trace of silt, fine to med. grained, well graded, trace of white calcium deposits, dry, No staining
5		0850	1' Rec.	cl/ml		(3'-3.3') SAND: Light brown, trace of gravel, fine to med. grained, well graded, clay
		0855	1.5' Rec.			(3.3'-4') SILTY CLAY TO CLAYEY SILT: DARK brown, slightly moist, No staining, similar to 3.3'-4' core.
		0900	2' Rec.			(4'-6') No staining
10		0905	2' Rec.	cl		(6.9'-8') CLAY: Dark gray to green, trace of sand, saturated (7.9'-8') White clayey material, moist, No staining)
		0910	2' Rec.			(8'-8.9') Similar material as 7.9'-8')
						8.9'-10') CLAY: DARK GRAY TO GREEN, trace of sand, Black stained areas, saturated
						(10'-11') Similar material as 8.9'-10'; (11'-12') DARK gray to green trace of brown hydrocarbon stained areas (concentrated areas)
15		0915	2' Rec.			Similar material as 11'-12' core
		0920	2' Rec.			Similar material as 12'-14': Increase in dark brown hydrocarbon staining from 1.5'-16', strong odor (concentrated areas)
		0930	2' Rec.			Similar material as 14'-16' core. Decrease in brown hydrocarbon staining
20		0957	1.8' Rec.			Similar material as 16'-18' core.
		1000	1.6' Rec.	SW		(20.7'-21.8') Clay: Green, trace of sand, saturated does not appear stained; (21.8'-22') Sand: Light brown, fine to med. grained, trace of silt, well sorted, dry, No staining
25		1005	2' Rec.			(22.5'-22.8') Sand: Light brown to green, med. to coarse grained, well graded, No staining
		1020	1' Rec.			(22.8'-23') Red/Light brown, fine to med. grained sand, trace of silt, No staining
						(23'-23.6') Clay, green, trace of sand, No staining (23.6'-24') Sand: Light brown, fine to med. grained, trace of silt, stained
						(24'-26') Sand: Light brown to green, fine to med. grained, slight brown (hydrocarbon) stained
						(26'-27') Similar material as 24'-26' core. Difficult coring. Discontinued at 27'. Slight odor (hydrocarbon)
30						

Total Depth: 27 Feet

No ground water during drilling.

Backfilled with hydrated bentonite pellets.

8.9'-21' clayey zone may potentially be sump material.

White material at 7.9'-8.9' (stained) appears to be pudding material.

NM - Not measured

CC - Continuous Core

NA - Not Applicable

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-02 | **SHEET** 1 **OF** 1

DRILLING CO./RIG TEG
SAMPLER TYPE AND DIMENSION Continuous Core 1" x 2'
FIELD ENGINEER A. Isaly
EDITED BY A Isaly
CHECKED BY ____
COORDINATES N NM E NM
DATE BEGAN 10.6.97
DATE FINISHED 10.6.97
GROUND SURFACE EL. NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION-RESISTANCE (BLOWS PER FOOT) Time Sampled	SAMPLE NO. AND TYPE (Recovery) CC	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	1115	1.5' Rec	ML/SM	
	↓	1120	1' Rec.	SW	
5		1125	9" Rec		
		1135	1.3' Rec		
		1140	1.7' Rec		
10		1145	2' Rec	CL	
		1150	2' Rec.		
15		1205	2' Rec.		
		1215	2' Rec		
		1225	2' Rec.		
20		1240	2' Rec.		
		1255	1.9' Rec		
25	↓	1315	2' Rec	SP	
30					

DESCRIPTION

(.8"-.10") SANDY SILT TO SILTY SAND; Light gray, trace of gravel, wellgraded, dry, No staining. (.10"-2') SAND; Brown, fine to med grained, trace of silt, well graded, dry, No staining (increase in silt content (1.6'-2')

(3'-3.7') Similar as 0-2' sample; (3.7'-4') Dark brown, trace of clay, dry, No staining

(5.3'-5.6') Clay: Dark brown, trace of sand, moist, No staining, (5.6-6') white clayey material, moist, No staining, No odor

(6.1'-7.2') Clay; white, moist, trace of sand, No staining, No odor (7.2'-8') Clay: Dark gray to green, trace of sand, evidence of staining (black areas) strong odor, saturated

(8.5'-10') Similar material as 7.2'-8' core. Decrease in black material

(10'-12') Similar material as 8.5'-10' core. Dark brown hydrocarbon staining in concentrated areas (11.9'-12')

(12'-14') Similar material as 10'-12' core. Increase in dark brown hydrocarbon staining areas (12'-13'). No evidence of hydrocarbon staining (13'-14')

(14'-16') Similar material as 12'-14' core. Evidence of dark brown hydrocarbon staining (15'-16').

(16'-18') Similar material as 14'-16' core. No hydrocarbon staining (16'-17'). Increase in hydrocarbon staining (17'-18')

(18'-20') Similar material as 16'-18' core. Increase in hydrocarbon staining throughout core.

(20-22') Similar material as 18'-20' core.

(22.3'-23.5') Similar material as 20-22' core.

(23.5'-24') SAND: Dark gray to green, fine to med. grained, poorly graded, dry, possibly stained, strong hydrocarbon odor

(24'-26') Similar material as 23.5'-24' core.

Total Depth: 26 FEET

No ground water during drilling.

Backfilled with bentonite pellets.

Clay (stained) Material below white clayey substance could potentially be sump material.

White material at 5.6'-7.2' appears to be puddy material.

NM - Not Measured
NA - Not Applicable
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-03 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core

AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10.6.97

DATE FINISHED 10.6.97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	CC 1340	1.3' Rec	ml/sm	
				sw	
				ml/sm	
		1345	1.4' Rec.	cl/ml	
5		1350	1.1' Rec		
		1355	1.6' Rec	cl	
		1400	2' Rec.		
10		1405	2' Rec		
		1410	2' Rec.		
15		1425	2' Rec.	ml/sm	
		1430	2' Rec.		
20		1435	2' Rec.		
25					
30					

DESCRIPTION

(0.8'-.11') Silty Sand To Sandy Silt: Light Brown, trace of gravel, well graded, No staining, dry (.11'-1.3') Sand: Brown, fine to med. grained, trace of silt, well graded, No staining, dry (1.3'-1.6') Sand: Red, trace of silt, No staining, dry (1.6'-2') Silty Sand To Sandy Silt: Dark brown, trace of coarse sand, well graded, micaceous, No staining, No odor, dry (2.9'-3.9') Silty Clay To Clayey Silt: Dark Brown, trace of sand, No staining, dry, No odor (3.9'-4') Clay, White, moist, trace of sand, No odor, No staining. (4.11'-6') Silty Clay To Clayey Silt: Dark Brown, trace of sand, well graded, moist, No odor, No staining (6.7'-7.7') similar material as (4.11'-6'). (7.7'-8') Clay, dark brown, trace of sand, moist, No odor, No staining. (8-8.6') Similar material as (7.7'-8') core. (8.6-10') Clay: Dark gray to green, trace of sand, stained dark black areas (9.4'-10'), moist staining (10'-12') Clay: Brown to green, trace of sand, moist, No black staining (12'-12.11') similar material as 10'-12' core. (12.11'-14') Silty Sand To Sandy Silt: Light brown to green, trace of coarse stained sand, well graded, slightly moist, No odor, possible staining (14'-16') Green similar material as 12.11'-14' core. Trace of clay. No odor, possible staining. (16'-17') Similar material as 14'-16' core. (17'-18') Increase in silt cont. (18'-20') Similar material as 18'-20' core. No odor, possible staining.

Total Depth = 20 Feet

No ground water during drilling.

Backfilled with bentonite pellets.

Clay Zone (stained) ~4.11'-13' may potential be sump material

White clay ~3.9'-4' may be pudoly material.

NA - Not Applicable
NM - Not measured
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-258

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS04 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-6-97

DATE FINISHED 10.6.97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Type Sampler	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	1510	CC 1.4' Rec.			(0.3'-1.3') Silty Sand To Sandy Silt: Light brown, trace of gravel, well graded, No odor, No staining, dry (1.3'-2') Dark brown to red, micaceous, No staining, dry
		1515	1.5' Rec.	ml/sm		(2.6'-4') Similar material as 1.3'-2' core. Trace of coarse grained sand. No staining. No odor
5		1520	1.1' Rec.			(4.1'-6') Similar material as 1.6'-2' core. Increase in sand content.
		1530	1.4' Rec			(6.8'-8') Dark Brown, moist, No odor, No staining.
		1535	1.6' Rec.	cl/ml		(8.6'-10') Silty Clay to Clayey Silt: Dark brown, trace of sand, micaceous, well graded, slightly moist, No odor, No staining
10		1540	2' Rec	ml/sm		(10'-12') Silty Sand to Sandy Silt: Brown to Red, trace of coarse sand, well graded, moist, No odor, No staining
		1550	2' Rec			(12'-13.7') Similar material as 10'-12' core. (13.7'-14') Silt: Dark gray to green, poorly graded, slightly moist, micaceous, No odor, No staining
15		1600	2' Rec.	ml		(14'-14.6') Similar material as 13.7'-14' core. (14.6'-16') Silty Sand to Sandy Silt: Dark gray to green, micaceous, moist, slightly moist, No odor, No staining
		1605	1.6' Rec.	ml/sm		(16.6'-18') Similar material as 14.6'-16 core. No odor, No staining
20		1625	1.4' Rec.			(18.1'-19.5') Similar material as 16.6'-18' core. Difficult drilling.

Total Depth: 19.5 Feet

No ground water during drilling

Backfilled with bentonite pellets.

Did not appear to encounter sump material or white putty.

NM - Not measured
NA - Not applicable
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-05 **SHEET** 1 **OF** 1

DRILLING CO./RIG TEG

SAMPLER TYPE AND DIMENSION Continuous Core 1" x 2'

COORDINATES N NM E NM

FIELD ENGINEER A. Isaly **DATE BEGAN** 10.7.97

EDITED BY A. Isaly **DATE FINISHED** 10.7.97

CHECKED BY ____ **GROUND SURFACE EL.** NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (TIME)	SAMPLE NO. AND TYPE (RECOVERY)	U.S.C.S.
0	NA	0655	CC 1.2' rec.	
		0700	1.2' Rec.	ml/sm
5		0705	1.1' rec.	
		0710	1.7' rec.	
		0715	1.8' rec	cl/ml
10		0720	2' rec.	
		0725	1.10' rec.	
15		0730	1.7' rec.	sp
				cl/ml
		0735	2' rec.	ml/sm
20		0745	2' rec.	ml
		0800	1.9' rec.	sp
25				

DESCRIPTION

(0.9'-1.2') SILTY SAND TO SANDY SILT; Light gray, trace of gravel, well graded, dry, No odor, No staining (1.2'-2') Dark brown, trace of coarse grain sand, No odor, No staining, slightly moist

(2.10'-4') similar material as 1.2'-2' core. No staining

(4.11'-5.8') Similar material as 2.10'-4' core. (5.8'-6') Silty Clay to Clayey SILT; Brown to green, trace of fine grained sand, med. plastic, micaceous, moist, No odor, No staining.

(6.5'-7.6') similar material as 5.8'-6' core. Black material from 6.5'-7' (possibly organic. (7.6'-8') Light green to black, trace of med to coarse sand, micaceous, moist, slight odor, stained

(8.4'-10') Dark brown to black, increase in sand content Strong hydrocarbon odor, stained (majority of core is black in color)

(10'-12') similar material as 8.4'-10' core.

(12.2'-12.7') similar material as 10'-12' core. Dark gray. (12.7'-14') SAND; Dark gray to black, fine to med. grained, trace of silt, poorly graded, moist, strong odor, stained

(14.5-15') similar material as 12.7'-14' core. (15'-16') SILTY Clay to Clayey SILT; Dark green to black, trace of fine grained sand, micaceous, slightly moist, slight odor, possibly stained

(16'-16.4') SILTY SAND TO SANDY SILT, Dark green to black, fine to med. grained sand, micaceous, slightly moist, slight odor, stained (16.4'-18') Similar material as 16'-16.4'. Decrease in grain size. Poorly graded. Slight odor. does not appear stained

(18'-20') SILT; Green (olive), poorly graded, micaceous, slightly moist, No odor, black material throughout core (possibly organic), does not appear stained

(20.3'-20.11') similar material as 18'-20' core. (20.11'-22') SAND; Light gray to olive green, fine grained, poorly graded, slightly moist, No odor, No staining (Difficult drilling)

Total Depth: 22 FEET

No ground water during drilling.

Backfilled with bentonite pellets.

Soil appears to be stained from ≈7.6-15' (Black)

NM - Not measured.
NA - Not Applicable
CC - Continuous core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WOI-TS-06 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-7-97

DATE FINISHED 10-7-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	0830	CC 1.1'rec	ml/sm	
		0835	1'rec.	cl/ml	
5		0840	1.2'rec		
		0845	2'rec.		
		0850	2'rec.	cl	
10		0855	1.8'rec.		
		0900	2'rec.		
		0905	2'rec	ml/sm silt	
15		0910	1.11'rec	ml/sm	
		0915	2'rec	ml	
20		0920	2'rec.	SP	
25					

DESCRIPTION

(1'-1.2') SILTY SAND TO SANDY SILT; Light brown to light gray, trace of gravel, well graded, dry, No staining (1.2'-2') Silty Clay to Clayey Silt: Dark brown, trace of sand, micaceous, slightly moist, no odor, no staining.
(3'-4') Similar material as (1.2'-2') core. mottling. No odor, no staining.
(4.9'-5.3') Similar material as 3'-4' core. (5.3'-6') Clay, Dark brown to dark gray, trace of sand, micaceous, saturated, strong odor, stained
(6'-8') Dark gray to olive green, trace of black material (possibly organic), saturated, strong odor. Stained (Dark brown hydrocarbon stained areas).
(8'-10') similar material as 6'-8' core. hydrocarbon staining throughout core
(10.5'-12') Similar material as 8'-10' core. Decrease in hydrocarbon staining.
(12'-13.9') Similar material as 10.5'-12' core. No evidence of hydrocarbon staining. (13.9'-14') Silty Sand To Sandy Silt, Olive green to dark brown, coarse grained sand, well graded, slightly moist, slight odor, does not appear stained
(14'-15.4') similar material as 13.9'-14' core. Appears to be slight increase in silt content (14.7'-15.4') does not appear to be stained. (15.4'-15.9') Sand; Light brown to olive green, fine to med. grained, well graded (15.9'-16') Silty Sand To Sandy Silt. Olive green, coarse grained sand, well graded, slight hydrocarbon odor, does not appear stained, slightly moist
(16.1'-16.10') Similar material as 15.9'-16' core. slight odor, no staining (16.10'-18') Increase in fines (fine grained sand), micaceous, poorly graded, slight odor, no staining
(18'-19.2') Silt; Olive green, poorly graded, micaceous, slightly moist, slight odor, No staining (19.2'-20') Silty Sand to Sandy Silt: Olive green, fine grained sand, poorly graded, micaceous, slight odor. No staining.
(20'-22') Sand; olive green, fine grained, trace of silt, poorly graded, slightly moist, slight odor, No staining

Total Depth: 22 Feet

No ground water during drilling.

Backfilled with bentonite pellets.

Clayey stained zone from 5.3' to 12' could potentially be sump material

NM - Not measured
NA - Not Applicable
CC - Continuous core.

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDT-TS-07 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-7-97

DATE FINISHED 10-7-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Time/Interval	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	1030	CC 1.1' Rec	ml/Sm	
		1035	10" Rec.	Cl/ml	
5		1040	8" Rec.		
		1045	2' Rec.		
		1050	2' Rec.		
10		1055	2' Rec.		
		1100	1.8' Rec.		
15		1105	1.10' Rec.	Cl	
		1110	2' Rec.		
		1115	2' Rec.		
20		1120	1.11' Rec.		
		1125	1.10' Rec.	Sp	
25					

DESCRIPTION

ASPHALT ~4" THICK

(0.11'-1.4') Silty SAND TO SANDY SILT: Light brown to light gray, trace of gravel, well graded, dry, no staining (1.4'-2') Silty Clay to Clayey Silt, dark brown, trace of coarse sand, micaceous, slightly moist, no odor, no staining.

(3.2-4') Similar material as 1.4'-2' core. Slight increase in clay content, no odor, no staining

(5.4'-5.6') Similar material as 3.2'-4' core. (5.6'-6') Clay: dark brown, micaceous, saturated, high plasticity, no odor, no staining. & trace of sand

(6'-8') olive green to dark gray, trace of sand, saturated, black material throughout core (possibly organic), saturated, strong hydrocarbon odor, possibly stained.

(8'-10') Olive green, similar material as 6'-8' core. Possible hydrocarbon staining (brown) ~ 9.3-9.10'

(10'-12') Similar material as 8'-10' core. Hydrocarbon staining (11.7'-12') appears to be dark brown in concentrated areas also an increase in black material

(12.4'-14') Similar material as 10'-12' core. Saturated. Does not appear to hydrocarbon staining; strong odor.

(14.2'-16') Similar material as 12.4'-14' core. Increase in hydrocarbon staining throughout core. Strong odor.

(16'-19') Similar material as 14.2'-16' core. Hydrocarbon staining evident throughout core. Black material from 17'-18'

(18'-20') Similar material as 16'-18' core. Decrease in hydrocarbon staining from 18'-19.7'. Increase in hydrocarbon staining from 19.7'-20'.

(20.1'-21.9') Similar material as 18'-20' core. (21.9'-22') SAND; olive green to light gray, fine grained, poorly graded, slightly moist, strong hydrocarbon odor, possibly stained.

(22.2'-24') fine to med. grained, poorly graded, slightly moist, slight odor, no hydrocarbon staining.

Total Depth: 24 FEET

Ground water was not encountered during drilling

Backfilled with bentonite pellets. Asphalt patch at surface

Clay (stained) zone ranging from ~ 6'-21.9' could potentially be sump material.

NM - Not measured

NA - Not Applicable

CC - Continuous Core

CLIENT EPA

PROJECT NO. 94-256

A-FIELD/FMB REV. 03/20/92

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-15 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-8-97

DATE FINISHED 10-8-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	1425	CC 1.7' rec	ml/sm	
		1430	1.3' rec	?	
5		1435	1' rec.	cl/ml	
		1440	2' rec.		
		1445	1.6' rec.		
10		1450	2' rec.		
		1455	1.3' rec.	m/sm	
				cl/ml	
15		1500	1.7' rec	sp	
				cl/ml	
		1505	1.3 rec	ml	
20					
25					

DESCRIPTION

(.5'-1.4') Silty Sand To Sandy Silt; Brown, trace of coarse sand, Trace of gravel, well graded, moist, No staining (1.4'-2') White material, high plasticity, possibly puddy, No odor, No staining (2.9'-3.6') similar material as 1.4'-2' core. (3.6'-4') - Silty Clay to Clayey Silt, Brown to olive green, trace of sand (coarse) micaceous, slightly moist, slight odor, No evidence of staining (5'-6') Similar material as 3.6'-4' core. saturated, strong hydrocarbon odor, possibly stained. (6'-8') similar material as 5'-6' core, strong hydrocarbon odor, black material intermixed, does not appear stained. (8.6'-10') similar material as 6'-9' core. (10'-12') olive green to brown, slightly moist, trace of coarse sand, NO odor, Hydrocarbon staining (brown) (a 18") (12.4'-14') Silty Sand To Sandy Silt: olive green to brown, trace of coarse sand, micaceous, slightly moist, No odor, No staining. (14.5'-15.3') Silty Clay to Clayey Silt, olive green, trace of coarse sand, saturated, No staining (15.3-15.9') Sand; Light brown, fine to med. grained, poorly graded, No staining (15.9-16') Silty Clay to Clayey Silt, olive green, micaceous, slightly moist, No odor, No staining (16.9-18') Silt, Olive green to light brown, micaceous, slightly moist, No odor, No staining. (Difficult drilling. Tough to proceed)

Total Depth: 18 Feet

No ground water during drilling.

Backfilled with bentonite pellets.

White puddy material from 1.4' to 3.6'

Sump Material appeared from ~3.6' to 12'.

NA - Not Applicable

NM - Not Measured

CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-16 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2.5

FIELD ENGINEER D. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-8-97

DATE FINISHED 10-8-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) 2"x2" Samples	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
						4" thick Asphalt
0	NA	1525	CC 10" Rec.	SW		(1.2'-1.3') SAND; brown, med grained, poorly graded, slightly moist. (1.3'-1.6') med to coarse grained sand, well graded, No staining (1.6'-1.9) Silty sand to sandy silt, Dark brown, trace of coarse sand, slightly moist, No staining (1.9'-1.10') White puddy material, high plasticity, moist (1.10'-2') Silty Sand to sandy silt, brown, trace of coarse sand, micaceous. No odor, No staining
		1530	10" Rec	ml/SM		
5		1535	1.9' Rec.	cl/ml		
		1540	1.8' Rec.	cl		(3.2'-3.10') similar material as 1.10'-2' core. (3.10'-4') Silty Clay to Clayey Silt, black brown, saturated, strong hydrocarbon odor, No staining
		1545	1.11' Rec	ml/SM		
10		1550	1.11' Rec.	cl/ml		(4.3'-5') similar material as 3.10'-4' core. Olive green, black material intermixed, moist, slight odor, possibly stained (5'-6') Clay, olive green, moist, slight odor, possibly stained (6.4'-7.7') similar material as 5'-6' core. (7.7'-8.') Silty Sand to Sandy Silt, Black to Dark olive green, trace of coarse sand, well graded, slightly moist, strong hydrocarbon odor, stained
		1555	1.8' Rec			
15		1400	1.5 Rec			
		1405	2' Rec.	Sp		(8.1'-8.6') similar material as 7.7'-8' core. (8.6'-10') Clayey Silt to Silty Clay, brown, trace of sand, micaceous, Slightly moist, No odor, no staining.
		1410	2' Rec.	ml		(10.1'-12') similar material as 8.6'-10' core. No odor, No stain (12.4'-14') similar material as 12.1'-12' core. No odor. No stain. (14.7'-16') similar material as 12.4'-14' core. Black material intermixed (possibly organic) No odor, No staining (16'-16.6') similar material as 14.7'-16'. No odor, No staining. (16.6'-18') SAND; Red brown, fine grained, trace of silt, poorly graded, slightly moist, No odor, No staining. (18'-20') SILT; Light brown, micaceous, poorly graded saturated. No odor, No stain.
20						
25						

Total Depth: 20 FEET

No ground water during drilling

Backfilled with bentonite pellets. Asphalt patch at surface.

Sump material encountered from 3.10'-8.6' Feet

White puddy material from 1.8'-1.10'.

NM- Not measured

NA- Not Applicable

CC- Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-17 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1"x2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-9-97

DATE FINISHED 10-9-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (Core only)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0			CC			~4" thick Asphalt
	NA	0645	1.1'	ml/sm		(1'-1.7') Silty Sand To Sandy Silt: Brown, trace of gravel, well graded, slightly moist, No Staining (1.7'-3') SAND; Light brown, med. to coarse grained, trace of gravel, well graded, dry, No odor, No staining. (2.9'-3.9') Silty Sand to Sandy Silt; Brown, trace of coarse sand, well graded, slightly moist, No staining. (3.9'-3.10') SAND; gray, coarse grained, well graded (3.10'-4') Silty Clay to Clayey Silt, Brown, trace of sand, micaceous, slightly moist, No odor, No staining (5'-6') similar material as (3.10'-4') core. Light gray lenses 5.4' No staining, No oder (6.7'-8') similar material as 5'-6' core. Increase in clay content. No staining. No odor. (8'-10') Similar material as 6.7'-8' core. No odor. No staining. (10'-12) similar material as 8'-10' core. No odor. No staining (12.2'-13.4') Similar material as 10'-12' core. Increase in silt content No odor No staining. (13.4'-14') Silt, Light gray to Light brown, micaceous, poorly graded, slightly moist, No odor. No staining. (14.9'-14.9) Silty Sand to Sandy Silt, Dark brown, trace of coarse sand, well Graded, No staining, No odor. (14.4'-16') Silt (similar material as 13.4'-14' core) No odor, No staining (16'-18') Similar material as 14.9'-16' Core. 16.4'-16.8' soil color varies from dark brown to light brown. No odor. No staining. (18.5'-20') similar material as 16'-12' core. No odor. No staining
5		0650	1.3'	sw		
		0655	1'	ml/sm		
		0700	1.5'	cl/ml		
		0705	2'			
10		0710	2'			
		0715	1.10'			
		0730	1.4'	ml		
15		0735	2'			
		0750	1.7'			
20						

Total Depth: 20 Feet

Ground was not encountered during drilling.

Backfilled with bentonite pellets.

Sump material was not encountered.

NA - Not Applicable
NM - Not Measured
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-18 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isely

EDITED BY A. Isely

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-9-97

DATE FINISHED 10-9-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE 7in. (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	0835	CC 1.1'	ml/sm		~~4" thick Asphalt~~ (1.11'-1.1') Silty Sand to sandy silt; Light grey, trace of coarse SAND, well graded, dry, No staining (1'-2') Silty Clay to Clayey Silt, Dark Brown, trace of sand, micaceous, med. plasticity, slightly moist, No odor, No staining.
		0840	1.5'			(2.7'-4') Similar material as 1.1'-2' core. No odor. No staining
5		0845	1.5'			(4.7'-6') Similar material as 2.7'-4' core. No odor. No staining.
		0850	2'	CL/ml		(6'-8') Similar material as 4.7'-6' core. No odor. No staining.
		0855	1.7'			(8.5'-10') Similar material as 6'-8' core No odor. No staining.
10		0900	1.10'			(10.2'-12') Similar material as 8.5'-10' core. No odor. No staining.
		0905	1.4'			(12.8'-13.6') Similar material as 10.2'-12' core. Increase in silt content
		0910	2'			(13.6'-14') Light brown to light gray, similar material as 12.8'-13.6' core.
15		0915	2'	SP		(14'-15.8') Similar material as 13.6'-14' core. No odor. No staining. (15.8'-16') SAND, Light brown to red, fine grained, trace of silt poorly graded, slightly moist No odor No staining (16'-18') Similar material as 15.8'-16' core. No odor No staining
		0920	1.9'	ml/sm SP		(18.3'-18.9') Similar material as 16'-18' core. (18.9'-18.10'). Dark brown, Silty SAND to SANDY SILT (18.10'-19.3') SAND; Brown, fine to med grained, No staining (19.5'-20') Increase in silt content. [Note: med coarse sand at bottom of sample tube]
20						

Total Depth: 20 Feet

No ground water during drilling.

Backfilled with bentonite pellets. Asphalt patch at surface.

Sump material was not encountered during drilling

NA - Not Applicable
NM - Not Measured
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-2' SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER D. Kelly

EDITED BY D. Kelly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-9-97

DATE FINISHED 10-9-97

GROUND SURFACE EL. NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (RECOVERY)	U.S.C.S.	PROFILE/ LITHOLOGY
0	NA	1130	CC 1.1	sw	
				my/sw	
5		1135	8"	gw/sw	
		1140	4"		
		1145	2'	cl/ml	
10		1150	1.1'		

DESCRIPTION

(.11'-1.2') Gravelly Sand; Light brown, well graded, dry, No staining (1.2'-2') Silty Sand To Sandy Silt; Dark Brown to Light brown, trace of coarse sand, trace of gravel, micaceous, dry, No odor, No staining.
(3.4'-4') Sandy Gravel to Gravelly Sand; Dark brown to Light gray, well graded, slightly moist, No staining, No odor.
(5.8'-6') similar material as 3.4'-4' core. No odor. No staining.
(6'-8') Silty Clay to Clay Silt; Dark brown to Dark gray, trace of sand, Saturated, Strong hydrocarbon odor, possibly stained.
(8.11'-10') similar material as 6'-8' core. Black material (8.11'-9.5') Hydrocarbon stained (brown) (9.5-10'), strong hydrocarbon odor.

TOTAL DEPTH: 10 FEET

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING.

Backfilled with bentonite pellets.

Encountered Sump material from 6'-10'

NA - Not Applicable
NM - Not Measured
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT EPA

PROJECT NO. 94-256

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-22 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-9-97

DATE FINISHED 10-9-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE Time (BLOWS PER FOOT)	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	1230	CC 1.2'	sm/sw		(10"-1.2') Sandy Gravel to Gravelly Sand; Brown, well graded, Loose, No staining, dry (1.2'-2') Silty SAND to Sandy Silt, brown, trace of coarse sand, trace of gravel, well graded, Sligtly moist, No odor, No staining. (3.3'-4') Similar material as 1.2'-2' core. Trace of clay. No odor. No Staining. (5.6'-5.9') Black, wood fibers, slightly moist, Possibly Stained (5.9-6') Silty Clay to Clayey Silt, Dark brown, trace of sand, slightly moist, Slight hydrocarbon odor, possibly Stained. (7.8'-8') Gravel, Dark brown, well graded, saturated, Strong hydrocarbon odor, possibly Stained. (Poor Recovery) H_2O in core tube. (8'-10') No Recovery. Hydrocarbon Stained tube, (Brown liquid.) Similar material on drill casing. Evidence of H_2O (oily sheen) Strong hydrocarbon odor. (possibly perched H_2O zone)
5		1235	9"	ml/sm		
		1240	6"			
		1245	4"	cl/ml		
10		1250	0	gw		

Total Depth: 10 Feet

Ground Water was Not encountered during drillings.

Backfilled with Bentonite Pellets.

Material appears to be impacted from 5.6'-10'.

NA - Not Applicable
NM - Not Measured
CC - Continuous Core

CLIENT EPA

PROJECT NO. 94-256

A-FIELD/FMB REV. 03/20/92

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-23 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-23-97

DATE FINISHED 10-23-97

GROUND SURFACE EL. NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Type	SAMPLE NO. AND TYPE (Recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NM	0810	CC 1.1'			Asphalt surface 4"-6" thick
						(1'-1') SILTY SAND TO SANDY SILT; Brown, trace of gravel, well graded, micaceous, dry, No staining (1'-2') SILTY Clay to Clayey Silt; Brown, trace of coarse sand, micaceous, slight hydrocarbon odor, No staining
		0815	6"			(3.6'-3.9') Similar material as 1'-2' core. No staining. (3.9'-4') Similar material as 3.6'-3.9' core. Black to dark brown, strong hydrocarbon odor, stained
5		0820	0'	CL/ ML		(9'-6') Difficult drilling. No recovery. Material inferred similar to 3.6'-4' material
		0830	6"			(7.6'-8') SILTY Clay to Clayey Silt; Brown to dark brown, low plasticity, slightly moist, strong odor, No staining.
		0835	1'	CL		(9'-10') Clay, Brown, trace of coarse sand, micaceous, stiff, slightly moist, No odor, No staining
10						

TOTAL DEPTH: 10

Backfilled with bentonite Pellets; Asphalt patch at surface

Encountered impacted soil from 3.9'-7.6'.

No groundwater during drilling.

NM - Not Measured
NA - Not Applicable
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT UNOCAL

PROJECT NO. 94-256

LOCATION WDI

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-24 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1" x 2'

FIELD ENGINEER A. Isaly

EDITED BY A. Isaly

CHECKED BY

COORDINATES N XIW E NM

DATE BEGAN 10-23-97

DATE FINISHED 10-23-97

GROUND SURFACE EL NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Time	SAMPLE NO. AND TYPE Recovery	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	1315	CC 5"			(1.7'-2') Silty SAND to SANDY SILT; Light gray to light brown, trace of coarse sand and gravel, well graded, slightly moist, No odor, No staining
		1320	0'	ml/SM		(2'-4') Rock in Shoe. No recovery.
		1325	10"			(5.2'-5.5') Similar material as 1.7'-2' Core. (5.5'-6') SAND; Gray, trace of silt med. to coarse grained, well graded, moist, slight odor, possibly stained
5		1330	11"	cl		(7.1'-8') Clay; Dark gray to Olive green, trace of coarse SAND, high plasticity, slightly moist, slight odor, possibly stained.
		1335	1.9'	SP		(8.3'-10') SAND: Brown, fine grained, trace of silt, poorly graded micaceous, slightly moist, No odor, No staining
10						

Total Depth: 10 Feet

Backfilled with bentonite pellets

No ground water during drilling.

Impacted Soil from 5.5'-8.3'.

NM - Not Measured
NA - Not Applicable
CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT UNOCAL

PROJECT NO. 94-256

LOCATION WDI

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. WDI-TS-25 SHEET 1 OF 1

DRILLING CO./RIG TEG

SAMPLER TYPE Continuous Core AND DIMENSION 1.5' x 3'

FIELD ENGINEER A. Isley

EDITED BY A. Isley

CHECKED BY

COORDINATES N NM E NM

DATE BEGAN 10-23-97

DATE FINISHED 10-23-97

GROUND SURFACE EL. NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT) Type	SAMPLE NO. AND TYPE (recovery)	U.S.C.S.	PROFILE/ LITHOLOGY	DESCRIPTION
0	NA	1400	CC 3'	CL/SW		ASPHALT SURFACE (4-6 THICK) (6"-3') Sandy clay to Clayey Sand; Brown, med to coarse grained sand, med. plasticity, moist, No odor, No staining.
5			NS	NS	NS	
		1415	1.11"	CL/ML		(8.1'-10) Silty Clay to Clayey Silt; Olive green, trace of sand, micaceous, moist, Strong hydrocarbon odor, Stained
10						

Total Depth: 10 FEET

No ground water during drilling

Backfilled with bentonite pellets. Asphalt patch at surface

Sampling for geotechnical analysis

NS - Not Sampled

NM - Not Measured

NA - Not Applicable

CC - Continuous Core

A-FIELD/FMB REV. 03/20/92

CLIENT UNOCAL

PROJECT NO. 94-256

LOCATION WDI

(ALL FIELD LOGGING ON THIS FORM, ORIGINAL TO PROJECT FILES)

ENVIRONMENTAL SOLUTIONS, INC.

MONITORING WELL VW-30

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat
SAMPLER TYPE Continuous Core
AND DIMENSION 5' x 2.5"
FIELD ENGINEER/ GEOLOGIST A. Isaly
EDITED BY A. Isaly
CHECKED BY

COORDINATES N NM
E NM
DATE BEGAN 1/21/93
DATE FINISHED 1/21/93
GROUND SURFACE EL. NM

DEPTH IN FEET	PID or FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE TYPE	U.S.C.S.	PROFILE/ LITHOLOGY	WELL CONSTRUCTION DETAIL	DESCRIPTION
0	NM	NA	2.5 (0-2.5')	ml/sm			(4") Asphalt Surface. (0-1) Silty Sand to Sandy Silt, Dark brown, trace of coarse sand and gravel, well graded, Red brick fragment, micaceous, slightly moist, No odor, No staining. (1-7) Silty Clay to Clayey Silt, Dark brown, trace of sand, white material (1-2.5'), micaceous, slightly moist, No odor. No staining. (increase in sand content 6.5-7')
5			5 (5-10)	cl/ml			(7-12.5) Clay, Red brown, trace of sand and silt, stiff, micaceous, slightly moist, No odor, No staining. (increase in sand content 11.5-12.5')
10			5 (10-15)	cl			(12.5-15.5) Silt, Olive green, trace of fine sand, mottling, micaceous, dry, No odor, No staining (med to fine grained sand zone 14'-14.4')
15			3 (15-18)	ml			(15.5-17) Sand, Light brown, med grained, poorly graded, mottling, slightly moist, No odor, No staining. (17-18) Silty Sand to Sandy Silt, Olive green, mottling, micaceous, very fine grained material, slightly moist, No odor, No Staining
20			4 (20-24)	Sp / sm			(18-20) No Recovery (20-35) Sand, brown, fine grained, trace of silt, micaceous, moist, No odor, No Staining (poorly graded, mottling) (21-22) increase in silt content (22-35) med. to coarse sand (Olive green, Poorly graded, trace of gravel, moist
25			2 (25-27)	Sp			
30			2 (30-32)				Note: Last 2 samples had poor recovery due to Sandy material. Samples were moist. Sampler was not wet therefore it does not appear that the drilling contacted ground water.
35							Total Depth (Continuous Core): 35 FEET. Did not encounter originals or impacted soils. 1st Probe: T.D. 35 (30-35) Gravel (35-29) Chips (hyd) (29-27.8') Grout (27.8'-24.6') Chips (hyd) (24.6'-23.5') 2nd Probe: T.D. 23 (18-23) Gravel (23.6-17) Chips (hyd) (17-15) Grout (15-9') Chips (hyd) (9-7.5) 3rd Probe: T.D. 7 (5-7) Gravel (7.5-3) Chips (hyd) (3-2.9') Portland Cement (2.9-0') Spacers @ 23' & 7'
40							

A-Field/Blank MW Log REV. 04/06/92

PROJECT NAME WD1
PROJECT NO. 94-256
LOCATION Santa Fe Springs, CA

ENVIRONMENTAL SOLUTIONS, INC.

MONITORING WELL MW-S1

SHEET 1 OF 1

DRILLING CO./RIG West Hazmat
SAMPLER TYPE Continuous Core
AND DIMENSION 5' x 2.5"
FIELD ENGINEER/ GEOLOGIST A. Isaly
EDITED BY A. Isaly
CHECKED BY

COORDINATES N NM
E NM

DATE BEGAN 1/23/98
DATE FINISHED 1/23/98
GROUND SURFACE EL. NM

DEPTH IN FEET	PID or FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE TYPE	U.S.C.S.	PROFILE/ LITHOLOGY	WELL CONSTRUCTION DETAIL	DESCRIPTION
0	NM	NA	3.5 (0-5.5)				(4") Asphalt Surface (0-23.5) Silty Clay to Clayey Silt, dark brown, trace of sand, micaceous, mottling, med to high plasticity, moist, No odor, No staining
5			S (5-10)				
10			S (10-15)	cl/ml			(9-23.5') Olive green, increase in sand (med to coarse grained), Soft, moist, strong hydrocarbon odor, stained
15			S (15-20)				
20			S (20-25)				
25			3 (25-27)	SW			(23.5-30.5) Sand, olive green, med to coarse grained, trace of gravel, well graded, slightly moist, slight odor, stained
30				cl/ml SW cl/ml			(30.5-31.5) Silty Clay to Clayey Silt, olive green, trace of Sand, micaceous, med. plasticity, slightly moist, slight odor, poss. Stained (31.5-33) Sand, Olive green, med to coarse grained, trace of gravel, Well graded, slightly moist, slight odor, possibly stained (33-35) Silty Clay to Clayey Silt, olive green, trace of sand, micaceous, med. Plasticity, slightly moist, slight odor, poss. stained
35							Total Depth (Continuous Core): 35 FEET Did not encounter liquids. Sump material from ~8'-23.5'
40				30-35 Slough			1st Packer: T.D. 30'-(30-25') Gravel (30-24) Chips (Hyd) (24-21.5) Grout (21.5-11) Chips (Hyd) (11.4-10.5) 2nd Packer: T.D. 18 (18-13) Gravel (13.5-12) Chips (Hyd.) (12-11) Grout (11-9) Chips (Hyd.) (9-8) (1' Sump 18'-19')

3rd Packer: T.D. 8 (5-8) Gravel (8-4) Chips (Hyd) (4-3) Portland (3'-0")

A-Field/Blank MW Log REV. 04/06/92

PROJECT NAME WD1
PROJECT NO. 94-256
LOCATION Santa Fe Springs, CA

ENVIRONMENTAL SOLUTIONS, INC.

Sprngs@ 18'&8'

BORING NO. HAB-4-02

SHEET 1 OF 1

DRILLING CO./RIG: WEST HAZMAT

SAMPLER TYPE AND DIMENSION: SPLIT SPOON 2.5"X18"

FIELD ENGINEER\ GEOLOGIST: C. VRABEL

EDITED BY: C. VRABEL

CHECKED BY:

COORDINATES N. NM E. NM

DATE BEGAN: 6-12-95 12:50

DATE FINISHED: 6-12-95 1:30

GROUND SURFACE EL.: NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE LITHOLOGY	DESCRIPTION
0			WDI-HAB			Red brown silty fine sand, damp to dry, medium
5	115	18	4-02-05	sm		- oil staining and odor
10	200	7	4-02-10	ml		Green brown silt, very soft, saturated, oil staining and odor
15	490	41	4-02-15			
20	30	70	4-02-20	sm		Gray silty fine sand, moist, medium dense to dense, slight oil odor - greenish gray

End of Boring: 20 feet.
No ground water.
No caving.
FID background 5.5 ppm.

94-256PPDR-04 REV. 7/5/95

CLIENT: WASTE DISPOSAL, INC.

PROJECT NO.: 94-256

LOCATION: SANTA FE SPRINGS, CALIFORNIA

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. HAB-4-05

SHEET 1 OF 1

DRILLING CO./RIG: WEST HAZMAT

SAMPLER TYPE AND DIMENSION: SPLIT SPOON 2.5"X18"

FIELD ENGINEER\ GEOLOGIST: C. VRABEL

EDITED BY: C. VRABEL

CHECKED BY:

COORDINATES: N. NM E. NM

DATE BEGAN: 6-12-95 1:30

DATE FINISHED: 6-12-95 2:30

GROUND SURFACE EL.: NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE LITHOLOGY	DESCRIPTION
0	-		WDI-HAB	sm		Brown silty fine to medium sand, damp to dry, medium dense - oil staining and odor, moist
5	3750	13	4-05-05	ml		Green brown and black silt, very soft, wet to saturated, oil staining and odor
10	1250	23	4-05-10	sm		Black green silty fine sand, moist, dense, oil staining and odor
15	170	64	4-05-15	sp		Gray fine sand, moist, dense, oil odor
20	67	84	4-05-20			

End of Boring: 20 feet.
No ground water.
No caving.
FID background 6.0 ppm.

94-256PPDR-04 REV. 7/5/95

CLIENT: WASTE DISPOSAL, INC.

PROJECT NO.: 94-256

LOCATION: SANTA FE SPRINGS, CALIFORNIA

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. HAB-4-06

SHEET 1 OF 1

DRILLING CO./RIG: WEST HAZMAT
SAMPLER TYPE AND DIMENSION: SPLIT SPOON 2.5"X18"
FIELD ENGINEER\ GEOLOGIST: C. VRABEL
EDITED BY: C. VRABEL
CHECKED BY:

COORDINATES N. NM E. NM
DATE BEGAN: 6-12-95 2:40
DATE FINISHED: 6-12-95 3:10
GROUND SURFACE EL.: NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE LITHOLOGY	DESCRIPTION
0			WDI-HAB			Brown silty fine to medium sand with gravel, damp to dry, medium dense
5	7	19	4-06-05	sm		- wet
10	42	32	4-06-10	sp		Gray brown slightly silty medium to coarse sand, moist to dense
15	22	80	4-06-15			
20	6	72	4-06-20			

End of Boring: 20 feet.
No ground water.
No caving.
FID background 6.0 ppm.

94-256PPDR-04 REV. 7/6/95

CLIENT: WASTE DISPOSAL, INC.

PROJECT NO.: 94-256

LOCATION: SANTA FE SPRINGS, CALIFORNIA

ENVIRONMENTAL SOLUTIONS, INC.

BORING NO. HAB-4-07

SHEET 1 OF 1

DRILLING CO./RIG: WEST HAZMAT
SAMPLER TYPE AND DIMENSION: SPLIT SPOON 2.5"X18"
FIELD ENGINEER\ GEOLOGIST: C. VRABEL
EDITED BY: C. VRABEL
CHECKED BY:

COORDINATES N. NM E. NM
DATE BEGAN: 6-12-95 3:30
DATE FINISHED: 6-12-95 5:00
GROUND SURFACE EL.: NM

DEPTH IN FEET	PID OR FID (ppm)	PENETRATION RESISTANCE (BLOWS PER FOOT)	SAMPLE NO. AND TYPE	U.S.C.S.	PROFILE LITHOLOGY	DESCRIPTION
0	-		WDI-HAB	sm		Brown silty fine to medium sand, dry to damp, medium dense, some gravel
5	7	31	4-07-05	gp		Dark brown black gravel, oil saturated, dense
10	550	15	4-07-10	ml		Dark gray black gravelly silt, semi liquid, visible oil staining and slight odor (no ring sample)
15	1150	26	4-07-15			
20	1750	38	4-07-20	sp		Dark gray coarse sand, dense, moist, oil staining and odor
				sm		Green brown silty fine sand, moist, dense
25	350	67	4-07-25	sp		Fine to medium slightly silty sand with gravel, moist, dense

End of Boring: 25 feet.
No ground water.
Caving.
FID background 6.0 ppm.

94-256PPDR-04 REV. 7/6/95

CLIENT: WASTE DISPOSAL, INC.

PROJECT NO.: 94-256

LOCATION: SANTA FE SPRINGS, CALIFORNIA

ENVIRONMENTAL SOLUTIONS, INC.

ATTACHMENT 3

Glossary of Terms

Glossary of Terms and Acronyms for Superfund

Cleanup: Actions taken to deal with a release or threatened release of hazardous substances that could affect public health or the environment. The term "cleanup" is often used broadly to describe various response actions or phases of remedial responses such as the Remedial Investigation/Feasibility Study (RI/FS).

Community Relations: EPA's program to inform and involve the public in the Superfund process and respond to community concerns.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The Acts created a special tax that goes into a Trust Fund, commonly known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, EPA can either;

- Pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work, or
- Take legal action to force parties responsible for site contamination to clean up the site or pay back the Federal government for the cost of the cleanup.

Cost-Effective Alternative: The cleanup alternative selected for a Superfund site based on technical feasibility, performance, reliability, and cost. The selected alternative does not require EPA to choose the least expensive alternative. It requires that if there are several cleanup alternatives available that deal effectively with the problems at a site, EPA must choose the remedy on the basis of performance, reliability, and cost.

Feasibility Study (FS): See Remedial Investigation/Feasibility Study (RI/FS)

Information Repository: A file containing the current information, technical reports, and response documents regarding a Superfund site. The Information Repository is usually located in a public building that is convenient for local residents, such as a public library.

Operation and Maintenance (O&M): Activities conducted at a site after a response action occurs, to ensure that the cleanup or containment system is functioning properly.

Potentially Responsible Party (PRP): Any individual(s) or company(s) (such as owners, operators, transporters, or generators) potentially responsible for, or contributing to, the contamination problems at a

Superfund site. Whenever possible, EPA requires PRP's, through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

Proposed Plan: The documentation of EPA's proposed remedy for a Superfund site based on the RI/FS. The Proposed Plan is put out for public comment and serves as the basis for input from all concerned parties. Comments generated from the Proposed Plan are compiled and considered by EPA and presented in the Record of Decision (ROD).

Public Comment Period: A time period during which the public can review and comment on various documents and EPA actions. For example, a Public Comment Period is provided when EPA proposes to a remedy at a site through a Proposed Plan.

Public Hearing: A public meeting held during the Public Comment Period where public testimony is taken by the EPA from any concerned parties. Comments provided during the Public Hearing are recorded in the record and are responded to by the EPA in the Response to Comments.

Record of Decision (ROD): A public document that explains which cleanup alternative(s) will be used at a Superfund site. The Record of Decision is based on information and technical analysis generated during the Remedial Investigation/Feasibility Study (RI/FS) and consideration of public comments and community concerns.

Remedial Action (RA): The actual construction or implementation phase that follows the Remedial Design of the selected cleanup alternative at a Superfund site.

Remedial Design (RD): An engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent Remedial Action at a Superfund site.

Remedial Investigation/Feasibility Study (RI/FS): Two distinct but related studies. They are usually performed at the same time, and together referred to as the "RI/FS". They are intended to:

- Gather the data necessary to determine the type and extent of contamination at a Superfund site;
- Established criteria for cleaning up the site;
- Identify and screen cleanup alternatives for Remedial Action;
- Analyze in detail the technology and costs of the alternatives.

Remedial Project Manager (RPM): The EPA official responsible for overseeing the Remedial Response activities at a Superfund site.

Responsiveness Summary: A summary of both oral and written public comments received by EPA during a Public Comment Period on key EPA documents and EPA's response to those comments. The Responsiveness Summary is included in the Record of Decision as the record of community concerns for EPA decision-makers

Superfund: The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act.

Waste Disposal, Inc. Group (WDIG): The group of corporations identified as Potentially Responsible Parties that are named in EPA's enforcement order to perform investigations and remedial design activities for the WDI site

Acronyms

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

FS: Feasibility Study

O&M: Operations & Maintenance

PRP: Potentially Responsible Parties

ROD: Record of Decision

RA: Remedial Action

RD: Remedial Design

RI/FS: Remedial Investigation/Feasibility Study

RPM: Remedial Project Manager

WDIG: Waste Disposal, Inc Group